National child project under the GEF Africa Mini-grids Program Eswatini

Part I: Project Information

Name of Parent Program
GEF-7 Africa Minigrids Program

GEF ID
10476

Project Type
MSP

Type of Trust Fund
GET

CBIT/NGI
CBIT **No**
NGI **No**

Project Title
National child project under the GEF Africa Mini-grids Program Eswatini

Countries
Eswatini

Agency(ies)
UNDP

Other Executing Partner(s)
Ministry of Natural Resources and Energy (MNRE)

Executing Partner Type
Government

GEF Focal Area
Climate Change

Taxonomy

Sustainable Development Goals, Innovation, Capacity, Knowledge and Research, Focal Areas, Climate Change, Climate Change Mitigation, Renewable Energy, Demonstrate innovative approache, Influencing models, Convene multi-stakeholder alliances, Strengthen institutional capacity and decision-making, Stakeholders, Local Communities, Beneficiaries, Private Sector, Individuals/Entrepreneurs, SMEs, Civil Society, Non-Governmental Organization, Trade Unions and Workers Unions, Academia, Type of Engagement, Partnership, Information Dissemination, Consultation, Participation, Communications, Awareness Raising, Education, Gender Equality, Gender Mainstreaming, Gender-sensitive indicators, Sex-disaggregated indicators, Gender results areas, Capacity Development, Access and control over natural resources, Participation and leadership, Knowledge Exchange, Learning

Rio Markers

Climate Change Mitigation

Climate Change Mitigation 2

Climate Change Adaptation

Climate Change Adaptation 0

Submission Date

1/17/2020

Expected Implementation Start

2/1/2022

Expected Completion Date

1/31/2026

Duration

48In Months

Agency Fee($)

77,691.00

A. FOCAL/NON-FOCAL AREA ELEMENTS

Objectives/Programs	Focal Area Outcomes	Trust Fund	GEF Amount($)	Co-Fin Amount($)
CCM-1-1	Promote innovation and technology transfer for sustainable energy breakthroughs for de-centralized renewable power with energy storage	GET	863,242.00	19,424,228.00
		Total Project Cost($)	**863,242.00**	**19,424,228.00**

B. Project description summary

Project Objective

Project Objective: Supporting access to clean energy by increasing the financial viability, and promoting scaled-up commercial investment, in renewable energy minigrids in Eswatini with a focus on cost-reduction levers and innovative business models.

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing($)	Confirmed Co-Financing($)

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing($)	Confirmed Co-Financing($)
Component 1. Policy and Regulation	Technical Assistance	Stakeholder ownership in a national minigrid delivery model is advanced, and appropriate policies and regulations are adopted to facilitate investment in renewable energy minigrids.	Output 1.1: Geospatial, techno-economic modelling of least-cost off-grid renewable electricity technologies (minigrids, grid expansion, solar home systems) Output 1.2: An inclusive national dialogue to identify minigrid delivery models, a vision and roadmap is facilitated, clarifying priority interventions for an integrated approach to off-grid electrification. Output 1.3: Capacity building provided to public officials (regulator, ministries) to identify and incorporate cost-reduction levers and innovative business models. Output 1.4: Minigrid DREI techno-economic analyses carried out to propose most	GET	241,553.00	1,173,141.00

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing($)	Confirmed Co-Financing($)
Component 2. Business Model Innovation with Private Sector	Investment	Innovative business models based on cost reduction operationalized, with strengthened private sector participation in renewable energy mini-grid development.	Output 2.1: Expansion of public utility minigrid pilot to incorporate Productive Use of Energy (PUE), innovative appliances and small business development, to demonstrate opportunities for improved feasibility of minigrid systems for rural households. Output 2.2: Greenfield pilot developed demonstrating productive uses use/innovative appliances and modular hardware/system design, leading to cost-reduction in minigrids.	GET	302,111.00	13,861,442.00

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing($)	Confirmed Co-Financing($)
Component 2. Business Model Innovation with Private Sector	Technical Assistance	Innovative business models based on cost reduction operationalized, with strengthened private sector participation in renewable energy mini-grid development.	Output 2.3: Strengthen capacity of potential developers and operators to consider design parameters, innovative business models and cost-reduction levers, to improve project feasibility, with practical experience drawn from both pilot projects.	GET	59,405.00	8,234.00

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing($)	Confirmed Co-Financing($)
Component 3. Digital, Knowledge Management and Monitoring and Evaluation	Technical Assistance	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	Output 3.1: 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. Output 3.2: A Digital Strategy is developed and implemented, including linkages to and following guidance from the regional project. Output 3.3: Minigrids digital platform implemented to run tenders and manage data from pilots, and to support minigrids scale-up and cost-reduction. Output 3.4: Active interface with regional project established, including, but not limited to, via (i)	GET	181,697.00	4,000,000.00

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing($)	Confirmed Co-Financing($)
				Sub Total ($)	**784,766.00**	**19,042,817.00**
Project Management Cost (PMC)						
				GET	78,476.00	381,411.00
				Sub Total($)	**78,476.00**	**381,411.00**
				Total Project Cost($)	**863,242.00**	**19,424,228.00**

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($)
Recipient Country Government	Ministry of Natural Resources and Energy (MNRE)	In-kind	Recurrent expenditures	8,234.00
Recipient Country Government	Ministry of Natural Resources and Energy (MNRE)	Public Investment	Investment mobilized	13,605,442.00
Donor Agency	World Bank (reflected in MNRE co-finance letter)	Loans	Investment mobilized	154,053.00
Recipient Country Government	Eswatini Electricity Company (EEC)	Public Investment	Investment mobilized	256,000.00
GEF Agency	UNDP	In-kind	Recurrent expenditures	4,000,000.00
GEF Agency	UNDP	Grant	Recurrent expenditures	50,000.00
GEF Agency	UNCDF	In-kind	Recurrent expenditures	910,000.00
Recipient Country Government	Eswatini Energy Regulatory Authority (ESERA)	In-kind	Recurrent expenditures	381,411.00
Recipient Country Government	Eswatini Energy Regulatory Authority (ESERA)	Public Investment	Investment mobilized	59,088.00
			Total Co-Financing($)	**19,424,228.00**

Describe how any "Investment Mobilized" was identified

The Ministry of Natural Resources and Energy (MNRE) had indicated interest in providing co-finance during concept phase, foreseen at the time to be recurrent expenditure. During the project design, co-finance from the Ministry was firmed up as part of the rural electrification investment including specific support earmarked for the development of the pilot project site. A loan from the World Bank, made available to the MNRE towards electricity planning and infrastructure, has also been indicated by the MNRE as co-finance. The Eswatini Electricity Company (EEC) has invested in the base infrastructure

(commissioned mid 2021) to which the PUE Overlay pilot will be added. The opportunity to collaborate with the EEC was identified during stakeholder consultation conducted during the project design phase. The investment in this minigrid is committed as co-finance. The Eswatini Energy Regulator (ESERA)?s investment into the Mini-grid and off-grid Regulatory Framework has been reflected as co-finance, investment mobilized. This is a portion of the commitment by the Regulator. The commitement by ESERA to support the AMP was newly identified during the project design phase.

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($)	Fee($)
UNDP	GET	Eswatini	Climate Change	CC STAR Allocation	863,242	77,691
				Total Grant Resources($)	**863,242.00**	**77,691.00**

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($)	Fee($)
UNDP	GET	Eswatini	Climate Change	CC STAR Allocation	50,000	4,500
				Total Project Costs($)	**50,000.00**	**4,500.00**

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?e (direct)	0	2444	0	0
Expected metric tons of CO?e (indirect)	0	54000	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?e (direct)				
Expected metric tons of CO?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?e (direct)		2,444		
Expected metric tons of CO?e (indirect)		54,000		
Anticipated start year of accounting		2021		
Duration of accounting		20		

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 Photovoltaic		0.02		
select				

Indicator 11 Number of direct beneficiaries disaggregated by gender as co-benefit of GEF investment

	Number (Expected at PIF)	Number (Expected at CEO Endorsement)	Number (Achieved at MTR)	Number (Achieved at TE)
Female		234		
Male		225		
Total	0	459	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

Part II. Project Justification

1a. Project Description

1) The global environmental and/or adaptation problems, root causes and barriers that need to be addressed

To limit global warming to between 1.5 and 2.0 degrees Celsius, in line with the Paris Agreement, the world?s greenhouse gas (GHG) emissions must decline to net zero by 2050 and become negative in the second half of this century. Achieving this target will require a rapid and systemic transformation of the energy sector, starting with energy conservation and efficiency and the progressive replacement of fossil fuels with renewable energy.

At the same time, the world is targeting universal access to affordable, reliable and modern energy services by 2030, requiring clean energy solutions to reach almost 760 million people currently without access. Critical to achieving both these targets is widespread deployment of low-carbon energy solutions and technologies. Such deployment face several obstacles. The investment requirements in technologies and infrastructure are high ? typically in countries without the means to afford it ? and the utilisation, and resulting revenue and business case, is most often low. Deployment also requires governments to create policies that enables and encourages investment and adoption, with the knock-on effect of displacing fossil-fuel based technologies, industries, and potentially a multitude of economic and political linkages. These are among the most significant barriers to the adoption of low-carbon energy technology by developing countries.

2) Baseline scenario and any associated baseline projects

In Eswatini the importance of energy as a critical input resource for economic growth and development and key to poverty alleviation had already been recognized and targeted with the goal to reach 100% access to clean energy at household level by 2030[1][1]. Eswatini has made significant progress in increasing the electrification rate, from only 5% of the population with access to electricity in 2003, to 75% in 2017[2][2]. The electricity access rate is estimated at 80% for 2020. This is in large part due to the Rural Electrification Program (REP) under the Ministry of Natural Resources and Energy (MNRE), with dedicated funding from Government. It has been complemented by community-led[3][3] electrification projects for which funding was accessed through the Rural Development Fund or Microprojects Programme that is supported by both government[4][4] and grants from cooperating partners including Taiwan, and the EU (via a micro-project programme)[5][5]. The REP is integral to the

Government of the Kingdom of Eswatini?s Vision 2022 national development strategy, which aims for Eswatini to attain ?developed? country status by 2022.

The high national electrification rate masks the variance between urban centers (90%) and rural areas (69%). The Kingdom of Eswatini Energy Masterplan 2034 notes that most households are within a kilometer of the national grid, but it is increasingly expensive to extend the network to remote areas.

These realities drive rural use of traditional fuels, especially wood and paraffin ? with wood fuel providing approximately 90% of total rural energy. UNEP estimates that Eswatini?s primary fuel mix contains 66% traditional fuels[6][6], meaning that traditional-fuels consumption would total approximately 2,438 GWh and produce an additional 3.6 $MtCO_2e$ over and above what is produced by modern methods, and that total GHG emissions from energy for the country may reach 4.7 $MtCO_2e$.[7][7] Domestic use of wood fuel is unsustainable and associated with indoor pollution[8][8], which contributes to the burden of respiratory diseases.

Eswatini is a net importer of electricity, both directly from South Africa[9][9] and the Southern African Power Pool (SAPP). During the 2018/19 financial year, 326.7 GWh of electricity were locally produced by four hydro power stations (60 MW). An additional 941.7 GWh of electricity were imported[10][10], mainly from South Africa where power generation is dominated by coal, to supply the system requirement of 1,259.9 GWh for the year. This represented emissions of ~1,063 $MtCO_2$[11][11] According to SAPP, Eswatini?s electricity demand is expected to grow to 1,863 GWh by 2025 and peak demand by 72 MW from the current level of 237 MW. Amidst this growing electricity demand, the national power utility plans to expand capacity, however only 40 MW of new generation projects were noted in the 2019[12][12] Annual Report at various stages of planning or development. Another 40 MW solar PV and 40 MW of biomass power is being procured under the country?s Independent Power Producer (IPP) procurement programme[13][13]. The shortfall between the growing demand and current build programme indicates that imports will likely continue for the foreseeable future.

Renewable energy (RE) minigrids have been noted as a potential part of the solution to address both the last mile electrification challenge and the growing electricity demand, while also contributing to the renewable energy targets and climate change commitments for the country.

In November 2020, the energy regulator in Eswatini formally initiated a process to develop a minigrid and off-grid regulatory framework for the country. The scope is comprehensive, covering a range of

topics that can help to reduce risks to developers and facilitate investment in RE minigrids[14][14]. It also includes the development of processes and procedures necessary to implement the framework. The targeted completion date was originally targeted for the first half of 2021. At the time of writing (September 2021), development had been initiated, but not yet completed. While a specific minigrid delivery model (refer Box 1, Section III of the Project Document) has not been selected by the Ministry of Natural Resources and Energy or the Regulator, the Ministry has indicated its intention to encourage private sector participation in the sector. It is expected that the development of the regulatory framework will begin to shape the preferred direction and will represent a significant milestone for minigrid development in the country. It is a base assumption of the Africa minigrids program (AMP) national project that this framework will be in place at implementation to guide the AMP activities.

The Eswatini Electricity Company (EEC)[15][15] recently initiated the first minigrid pilot installation for the country to provide electricity to a small, isolated rural village. The 35 kWp, 200 kWh Solar PV battery system was commissioned mid 2021. The pilot project was planned to provide electricity to 21 households and 2 churches. No productive uses of energy (PUEs) were being connected to the system. Initial indications, shortly after commissioning was that electricity demand was a fraction of the designed capacity.

Unlike many countries in the region, Eswatini has not had a spontaneous uptake of minigrids. This is ascribed to numerous factors:

- ? The already high electrification rate in the country (80%), with most settlements within a kilometer of the national power network.
- ? The national electricity tariff for residential consumers is relatively low at USD 0.10 per kWh[16][16] and applies to 80% of the country. It makes it likely that residential consumers would object to higher tariffs from minigrids even if the regulatory environment allowed.
- ? Very low electricity usage even among electrified consumers, with only 27% of the adult population using more than 1,460 kWh per year. Approximately 45% are unable to afford the Standard Consumption Package (SCP) of 365 kWh per year[17][17]. A further 36% have opted to continue using biomass for cooking as a cheaper option to using electricity[18][18].
- ? Electricity delivery to the ?last mile? in energy access involves reaching people who live in isolated and often impoverished rural communities where electricity demand is expected to be very low, making it difficult to attract private-sector investment.

? The dispersed nature of settlements in Eswatini, in combination with the previous points, suggests that off-grid solutions, such as solar home systems (SHS) combined with clean cooking solutions, may be a more likely solution for a large share of remote, rural households.

? Consequently, the remaining market potential for minigrids is likely small, suggesting the scaling necessary to make minigrid operations financially viable and attractive to private sector operators may not be available.

This context does not present an obvious market for conventional minigrid developers, pointing to numerous underlying investment risks for RE minigrids.

It is noted that under the National Energy Policy, Eswatini has committed to migrate to cost-reflective tariffs in the electricity sector. Historically, the electricity tariff structure has allowed cross-subsidization, thereby sheltering some consumer categories from the full cost of supply. Within the current structure, clean energy minigrids could potentially offer more cost-effective opportunities for commercial, agricultural and industrial consumers. While the country is still grappling with the practicalities of this intended migration and no timelines have been committed, it is likely to increase tariffs for domestic customers and may ease the cost burden on commercial and industrial consumers. In this event, new opportunities for minigrids may again emerge. In either context, minigrids will be well placed when serving both commercial farming or forestry and residential consumers and/or where it can be embedded into agricultural value chains.

A survey[19][19] circulated to potential developers in the country further highlighted (i) the ability to generate revenue from the electricity sales to recover the investment and (ii) access to affordable financing as the most significant barriers and expected risks to developing minigrids in the country. The availability of skills to develop and operate a system as well as an uncertain policy environment also raised concerns. Respondents unanimously agreed on the relevance of minigrids for parts of Eswatini, but noted the critical linkage to productive uses including health care, agriculture, education or tourism to improve viability. Addressing some of these barriers could help open the market for private sector participation in the sector.

The active MSME sector in rural areas in Eswatini, coupled with high mobile phone penetration levels (86%) and mobile network coverage estimated at 90%, suggests that there is an opportunity for electrification to effectively couple with productive uses in rural areas. The significant involvement of women in the MSME sector would mean that women not only stand to benefit from the electrification of household activities, but may also gain the benefit of energizing and growing their small businesses.

Other opportunities to create an enabling environment for minigrids to meaningfully contribute to rural electrification exist in:

? The Rural Electrification Access Fund, as a possible means to subsidise minigrid developments and operations.

? The minigrid and off-grid regulatory framework, providing a level of policy and regulatory certainty and clarity across a broad scope of important issues.

? Proximity to South Africa with several service and technology providers.

? The cost competitive pilot installation by EEC, comparing well against the AMDA minigrid cost benchmarks for the region ? suggesting realistic hardware and development costs.

RE minigrids can bring together the converging interests of the Ministry of Commerce, Industry and Trade (MCIT), Ministry of Economic Planning and Development (MEPD), the Ministry of Tinkhundla[20][20] Administration and Development (MTAD), Ministry of Tourism and Environmental Affairs (MTEA) and the Ministry of Natural Resources and Energy (MNRE) towards the objectives of the country?s National Energy Policy, 2018 i.e.: (i) Ensuring universal access to affordable energy; (ii) Enhancing employment creation; (iii) Ensuring security of energy supply; (iv) Stimulating economic growth and development; and (v) Ensuring environmental health and sustainability. To achieve this, will require due consideration by a cross section of government and industry stakeholders to better assess the opportunities for and contribution from mini-grids in the country.

3) Proposed alternative scenario with a description of outcomes and components of the project;

Technology advances and cost reductions in the most recent decade have made RE, most notably solar PV, the most affordable source of energy available[21][21] when developed at utility scale. Coupled with the flexibility and modularity offered by RE systems, solar PV increasingly also offers affordable, clean energy solutions for electrification of more remote, rural communities and activities. Accordingly, solar PV minigrids have been recognized as a key part of the portfolio of options available to countries towards achieving universal access to clean, modern and affordable energy.

Minigrids lie at the nexus between rural electrification, climate resilience and sustainable development. The African Mini-Grid Community of Practice (AMG-CoP)[22][22] ? a collaborative network of 16 African country governments ? identified minigrids as a central element of developing a decarbonized, climate-resilient energy services sector for the millions of people in Africa who lack access to affordable, safe and clean energy. Green minigrids deliver climate change mitigation and resilience, while also advancing economic and social development benefits. A 2020 EEP Africa study of the climate co-benefits from clean energy projects[23][23], highlighted the significant potential for resilience

co-benefits[24][24] offered to communities by off-grid solar home systems (SHS), minigrids and powering productive uses. It also pointed to the importance of initial, small-scale risk-taking, through clean energy innovation, business model testing, and demonstration projects, for assessing long-term viability.

While technology advances and downward cost trends have markedly improved the business case for RE minigrids, in many countries, they are not yet competitive with fossil-fuel based alternatives. The AMP Theory of Change (TOC) is premised on the understanding that the high costs of RE minigrids are partly attributed to a range of risk factors, each of which contributes a premium to the development costs of minigrid systems.

The hypothesis follows that by significantly reducing the investment risks for RE minigrids in a partner country, the levelized cost of electricity (LCOE) can be reduced, which in turn will accelerate and scale up the adoption of RE minigrids as part of the effort towards achieving universal energy access in the country and the broader region. Accelerating the adoption of clean energy also contributes greater GHG emission reductions.

The AMP has adopted a common architecture of four key components, a combination of enabling policy and regulations, business model innovation with private sector involvement, innovative financing and digital innovation as the levers to lower investment risks, thereby reducing financing, hardware and soft costs while increasing revenues and improving system efficiencies. Within this architecture, AMP will emphasize - and seek to develop comparative advantages - in three ?key areas of opportunity? (naional dialogues on delivery models; productive use; digital). This approach, illustrated below in Figure 1, is structured to advance the program objectives of cost-reduction and innovation for minigrids and give effect to the TOC.

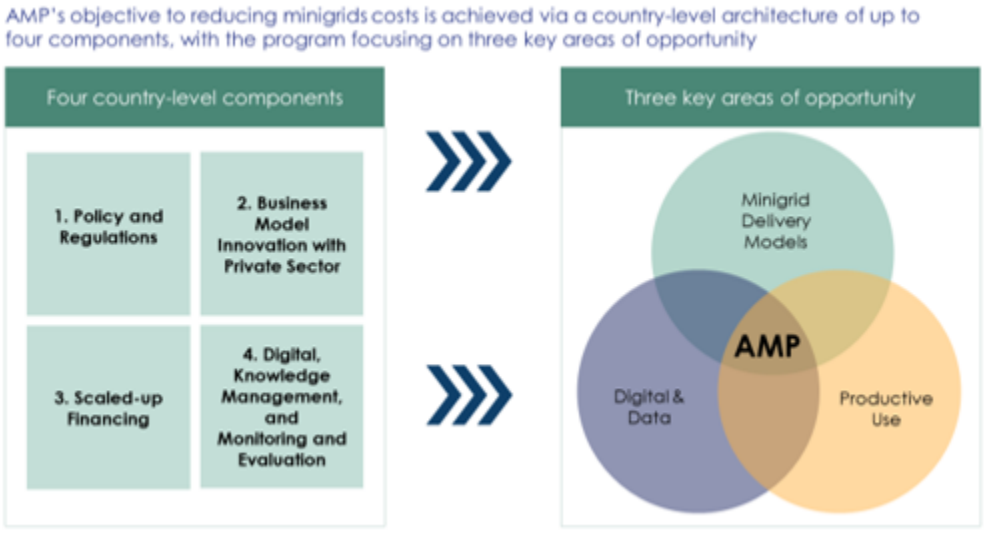


Figure 1: AMP?s objective, architecture and areas of opportunity

The TOC draws on the Derisking of Renewable Energy Investment (DREI)[25][25] methodology and standard categories of risk. As noted earlier, these risks have been shown to translate into higher development costs that in turn increases the cost of electricity to the consumer and/or discourages investment in the sector. Various cost reduction levers across the themes of policy and regulation, business model innovation and private sector as well as innovative finance can be employed to reduce risk (e.g. policy derisking), compensate for risk (e.g. financial incentives) or transfer risk (e.g. financial derisking). Less risk contributes to simplified feasibility assessments, lower development costs and lower financing costs, improved revenues and system efficiencies, among others. This, in turn creates a more attractive investment environment conducive to scaled up investment in the sector.

De-risking the investment environment and attracting and leveraging private and public-sector resources to increase energy access, promote RE and enhance energy efficiency (EE) in a manner that is inclusive and responsive to the needs of different sectors of the population, will support the Government of the Kingdom of Eswatini in its transition to sustainable energy systems in line with its stated ambitions and the aspirations of Sustainable Development Goal 7. Access to clean energy is also expected to play a critical role in combatting the pandemic and catalyzing an economic recovery in the wake of the COVID-19 pandemic, particularly in African countries[26][26]. At a project level, this understanding is expected to shape the review of the investment risks and policy instruments (Outputs 1.2 and 1.4). Power to healthcare facilities, supply of clean water for essential hygiene, enabling communications and IT services for education or more broadly connect people while maintaining social distancing, have been noted as potential opportunities to adapt and respond to the pandemic. These have been recognized as preferred interventions at pilot sites (Outputs 2.1 and 2.2), as appropriate. Furthermore, in collecting and analyzing data for the planned GIS-based modelling there will be an opportunity to capture metrics highlighting the relative ?situational? vulnerability of a given location (Output 1.1). Considerations and opportunities relating to COVID-19, clean energy minigrids and the AMP are included in Annexure 19 to support COVID-19 sensitive planning during implementation.

The concept (refer Box 1 in the Project Document for a more detailed description) of a minigrid ?delivery model? (specifically: who finances, builds, owns and operates the minigrid asset) as well as the closely related issues of tariff levels and subsidies, is a key concept and area of focus for AMP projects and the program as a whole. Clearly defined delivery models, with associated tariff structures and subsidy mechanisms, are considered an essential pre-requisite for financial scale-up in the mini-grid sector. Accordingly, the AMP framework makes provision for a National Dialogue in each partner country to review and define, confirm or refine the chosen delivery models for the country, as appropriate.

As already noted, the absence of spontaneous commercial minigrid developments points to a range of risks and barriers to private sector participation in the country that make it unlikely for conventional

minigrid developers to develop, own and operate a minigrid system in the country. Early indications are that an Energy Services Company (ESCO) model could be an appropriate delivery model to attract private sector participation. Additional guidance and clarity are however expected to emerge from the minigrid framework currently under development by the Eswatini Energy Regulatory Authority (ESERA) to further shape the delivery context and model for the country.

Within the untested and as yet undefined market environment, at this very early stage for minigrids in the country, the AMP aim is on pre-emptively addressing risks and creating a universally relevant set of resources, thereby establishing a platform that can support any preferred policy direction.

Accordingly, the AMP will focus strongly on developing data and knowledge, including (i) detailed mapping, to help determine the size and nature of the addressable minigrid market, (ii) demonstrating innovative business models more likely to contribute to cost-effective delivery of electricity to remote rural areas and attract private sector interest, and (iii) establishing a digital platform to support data collection and knowledge creation and facilitate operations.

The already active small business community in the country presents an important opportunity for enhancing the viability of minigrid operations. Demand for electricity from small industry and businesses, which is defined as the productive use of energy[27][27] (PUE), presents a key success factor for minigrids. Because of the typically low energy usage of residential customers, without linkage to and support for these ?productive? energy users, minigrids are likely to struggle to reach the critical revenue needed for financial viability ? essential to encourage private sector players. Productive users are also important to enhance the economic and social development impacts of micro-grids and rural electrification programs more broadly. Support for affordable domestic appliance uptake, though lacking the income generation potential of PUE, is an additional strategy for load growth and revenue enhancement.

Successful minigrid developments therefore require both the delivery of the technical infrastructure and enhancing PUE in parallel. For this reason, a strong emphasis of the AMP pilot initiatives will be on encouraging productive use and supporting small business activities alongside the development of minigrids.

Data, experience and learnings from the two pilots will serve as important inputs to inform and advance/refine the country?s chosen vision for minigrids. Data also serves a broader purpose as an enabler for more efficient and cost-effective minigrid operations. An emerging theme from lessons across minigrid systems is the importance of digital tools and solutions as a key driver for minigrids and minigrid cost-reduction. Digitization is proving a key enabler for individual systems and national planning and decision making. Practically, in the context of AMP projects, a key mechanism for realizing this opportunity will be each project?s use of a digital platform. Accordingly, a digital platform has been included in the AMP design for Eswatini under Component 3 (Output 3.2) with close links to both Components 1 and 2 and the AMP regional project.

The expected contribution of the AMP in Eswatini is illustrated in a country specific Theory of Change adapted from the broader framework of the AMP TOC, as shown below.

Figure 2: Eswatini AMP Theory of Change

An adaptive approach has been used during PPG to redesign the Esatini AMP project proposed at the concept note stage, reflecting the guidance provided by survey feedback, broader stakeholder consultation, the deeper understanding of the country contextand recent regulatory and sector developments. Accordingly, the AMP in Eswatini will focus on a selection of interventions intended to lower risks and reduce the costs for all future minigrid developments in the country. These interventions have been structured according to the thematic areas described by the AMP TOC (Figure 2) The envisaged contributions from these interventions are summarized for the three project components and unpacked in greater detail in Section IV. Results and Partnerships of the Project Document. Amendments made to the project components and outputs since the Concept Note have been set out in the table at the end of this section.

Table 1: Overview of Project Components

Project component	**Project outcomes**	**Outputs**

Project component	Project outcomes	Outputs
1. Policy and Regulation	Stakeholder ownership in a national minigrid delivery model is advanced, and appropriate policies and regulations are adopted to facilitate investment in RE minigrids.	Output 1.1: Geospatial, techno-economic modelling of least-cost off-grid renewable electricity technologies (minigrids, grid expansion, solar home systems) Output 1.2: An inclusive national dialogue to identify minigrid delivery models, a vision and roadmap is facilitated, clarifying priority interventions for an integrated approach to off-grid electrification. Output 1.3: Capacity building provided to public officials (regulator, ministries) to identify and incorporate cost-reduction levers and innovative business models. Output 1.4: Minigrid DREI techno-economic analyses carried out to propose most cost-effective basket of policy and financial derisking instruments and contribute to AMP Flagship Report on Cost Reduction
2. Business Model Innovation with Private Sector Engagement	Innovative business models based on cost reduction operationalized, with strengthened private sector participation in RE minigrid development.	Output 2.1: Expansion of public utility minigrid pilot to incorporate Productive Use of Energy (PUE), innovative appliances and small business development, to demonstrate opportunities for improved feasibility of minigrid systems for rural households. Output 2.2: Greenfields pilot developed demonstrating productive uses use/innovative appliances and modular hardware/system design, leading to cost-reduction in minigrids. Output 2.3: Strengthen capacity of potential developers and operators to consider design parameters, innovative business models and cost-reduction levers, to improve project feasibility, with practical experience drawn from both pilot projects.
3. Digital, Knowledge Management and Monitoring and Evaluation	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	Output 3.1: 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. Output 3.2: A Project Digital Strategy is developed and implemented, including linkages to and following guidance from the regional project. Output 3.3: Minigrids digital platform implemented to run tenders and manage data from pilots, and to support minigrids scale-up and cost-reduction. Output 3.4: Active interface with regional project established, including, but not limited to, via (i) participating in Communities of Practice and (ii) capturing and sharing lessons learnt. Output 3.5: Knowledge network established to promote minigrid development / rural energy access. Output 3.6: M&E and Reporting, including (i) Conducting inception workshop and preparing report, (ii) Ongoing M&E, (iii) Mid Term Evaluation and (iv) Terminal Evaluation

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

The Africa Minigrid Program is intended to contribute towards the GEF-7 Climate Focal Area?s stated Objective 1 to ?Promote innovation and technology transfer for sustainable energy breakthroughs? and more specifically to mitigate climate change as defined under Objective CCM1-1, to "Promote innovation and technology transfer for sustainable energy breakthroughs for de-centralized renewable power with energy storage".

These objectives are stated in response to the urgent need to curb greenhouse gas emission while also addressing the developmental need for improved energy access in developing countries. The program therefore also aligns with Sustainable Development Goal 7 that aims to ?Ensure access to affordable, reliable, sustainable and modern energy for all? as well as Sustainable Development Goal 13 i.e. ?Take urgent action to combat climate change and its impacts?.

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

The GEF-7 Trust Fund allocation for the Eswatini AMP project is USD 863,242. USD 50,000 has been committed from UNDP TRAC resources as cash co-finance for the project. A further USD 19,374,228 in co-finance have been committed by a range of sources as detailed in the co-finance table (Table C) in Part I of this document. In addition to implementing the project scope already described, the combined project finance of USD 20,287,470 will unlock the global environmental benefits described below.

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

Emission reductions (tCO_2): The lifetime global environmental benefits that will accrue from the adoption of clean energy minigrid technologies is estimated at 2,444 tCO_2e. Indirect emission reductions amounting to 54,000 tCO2e are expected due to investments in minigrids completed during the 10-year influence period following project completion, predominantly through the replication of the sustainable technology value chain.. The project yields a GEF abatement cost of 1,086 USD/tCO_2e. This abatement cost takes into consideration overall upfront and replacement CAPEX of both pilots, as well as CAPEX for PUE overlay.

Increase in installed solar PV capacity (MW) and battery storage (MWh) targets: The AMP Eswatini project is expected to result in an increase in renewable energy installed capacity of 0.02 MW of solar photovoltaic (PV) systems and 0.165 MWh of battery storage.

Number of direct beneficiaries targets (Energy access via minigrids): The number of direct project beneficiaries is expected to be around 459 persons, of whom approximately 234 will be women. This reflects the number of direct beneficiaries benefitting from energy access via minigrids, disaggregated by gender and by customer segment (residential, social, commercial/productive use), as co-benefit of GEF investment

7) Innovativeness, sustainability and potential for scaling up. ?

The AMP in Eswatini has been designed very deliberately to build a knowledge platform (minigrid potential map, Output 1.1, Vision and Roadmap, Output 1.2, Training courses, Output 2.3) to support and benefit all future minigrid developments, including those that may service non-residential sectors. A significant focus of the AMP interventions in Eswatini is to reduce the costs of future developments by creating an environment more conducive to minigrid development. Output 1 has been structured to be embedded into the policy and planning for the country, contributing to the long-term context for minigrids.

The two pilot projects, introducing innovative business models, are intended as demonstration facilities to inform future system design and development. Feedback loops to the National Dialogue (Output 1.2), Capacity Building (Output 1.3 and 2.3) and the Community of Practice (Output 3.3) are intended to actively disseminate the learnings from the pilots to inform both the policy and regulatory environment as well technical capacity building.

The entire scope of Component 3 is focused on converting data, findings, lessons and case studies into useful resources for the benefit of future developments, both nationally and in the region.

The combined impact of better planning data, a clear line of sight on the intended contribution and role of minigrids in the country and rich knowledge resources that includes regional and country specific experience, is intended to create a springboard for minigrid developments in the country.

A central principle for AMP is to seek to maximize financial viability and sustainability in minigrids. As such a core objective in AMP national projects will be to select minigrid delivery models, business models and to promote minigrid system sizing/planning to maximize minigrids? asset lifetime and financially viable operations, including but not limited to replacement of batteries and convertors.

Embedding the PMU and project website with complete knowledge resources within ESERA and the training modules with Centre for Sustainable Energy Research (CSER), with a view towards incorporating these as permanent offerings in the short course platform, is intended to encourage institutionalization and sustainability also of these contributions beyond the four-year implementation period.

The sustainability of the two pilot projects in Eswatini has also been considered, pending the finalization of the Minigrid And Offgrid Regulatory Framework. The following arrangements have been made for continued maintenance and the safe handling and recycling of spent batteries and equipment for the pilot projects:

Greenfield pilot project

- For the greenfield pilot project a requirement has been included that makes accessing GEF funding subject to continued maintenance and safe handling and recycling of spent batteries and replaced equipment in compliance with national and UNDP safeguards requirements. It requires these specifications to be clearly documented, budgeted and monitored.

? The relevant Output includes a provision that requires a mechanism be put in place to ensure the greenfield minigrid will be used for a minimum lifetime (20 years). This includes the requirement for a governance structure as well as a table that explains ownership and operation of the mini-grids, to be developed during implementation should the finalisation of the regulatory framework be unduly delayed or if it does not adequately provide for these parameters.

Sigcineni PUE Overlay Pilot project

? The PUE Overlay pilot project at Sigcineni is fully owned and operated by the EEC, the national electricity utility in Eswatini. The minigrid project has a minimum 30 year design lifetime and design and modelling is based on at least 30 year operation. Routine maintenance and corrective maintenance are planned for and will be done by EEC staff and capacitated local individuals.

? The Sigcineni pilot has documented environmental management requirements that includes handling of spent batteries and solar panels. For this site, the batteries have a 7 to 10-year expected life and the PV modules an estimated lifetime of 20 years. The minigrid is planned to operate at full productivity for at least 30 years, with planned equipment replacements to ensure continued operation. A requirement has been added for the recycling of spent batteries to be ensured.

? The Sigcineni pilot project is part of the service delivery and universal access commitment of the EEC and Government, expected to continue indefinitely unless integrated into the national power network. A requirement has been included in the Project Document making the contribution of the PUE overlay provisional to continued operation over the 30-year design life of the project and responsible handling of waste as per the environmental safeguards plan for the project.

Outputs with budget at Concept Note	Outputs with budget at CEO ER	Change	Justification

Outputs with budget at Concept Note		Outputs with budget at CEO ER		Change	Justification
The **objective** in Concept Note: Supporting access to clean energy by increasing the financial viability and promoting scaled-up commercial investment in minigrids in Eswatini.	-	Supporting access to clean energy by increasing the financial viability, and promoting scaled up commercial investment, in renewable energy minigrids in Eswatini, with a focus on cost-reduction levers and innovative business models.	-	The objective statement and the wording of components, outcomes, and indicators have been updated by the AMP Regional Project for all countries participating in the programme.	UNDP has developed a revised Harmonized Results Framework for AMP National Child Projects based on the set of components, outcomes and outputs included in the Program Framework Document (PFD) and national child project Concepts approved by the GEF Council in December 2019. The AMP Harmonized Results Framework (AMP) is an evolution from the PFD/Concept phase results framework and reflects the most updated thinking and guidance provided to national project design teams during the Project Preparation Grant (PPG) Phase for 1st round national child projects (Jan 2020 ? Jun 2021). All changes are explained in further below. However, the basic thinking around these changes is explained as follows: Objective: the objective has been adjusted to better reflect the program?s focus on cost-reduction. ? Component 1. Changes made to emphasize on the importance of having governments make

Outputs with budget at Concept Note		Outputs with budget at CEO ER		Change	Justification
Outcome 1. Appropriate policies and regulations are in place that address policy, institutional, regulatory and technical barriers to facilitate investment in renewable energy minigrids (?minigrids?)	$ 169,486	Outcome 1. Stakeholder ownership in a national minigrid delivery model is advanced, and appropriate policies and regulations are adopted to facilitate investment in renewable energy minigrids.	$ 241,553	Outcome wording adjusted	Stakeholder ownership in a national minigrid delivery model is expected as a result of project activities. Namely, project activities that support an inclusive and sustained national dialogue aimed at deciding on the most appropriate delivery model for a country to develop its minigrid sector.

Outputs with budget at Concept Note		Outputs with budget at CEO ER		Change	Justification
1.1. A mini-grid regulatory framework, including tariff model and tax regime, and grid expansion risk, is developed in close coordination with other development partners.		1.1 Geospatial, techno-economic modelling of least-cost off-grid renewable electricity technologies (minigrids, grid expansion, solar home systems)		The development of a mini-grid regulatory framework has been replaced by mapping mini-grid potential for the country.	The Eswatini Energy Regulatory Authority (ESERA) has already initiated the development of a Mini-grid and Off-grid Regulatory Framework that they expect will be completed during 2021. The scope of the framework that is being developed is comprehensive, seemingly addressing all aspects of importance to mini-grid developments. Output 1.1, as defined in the Concept Note has therefore become redundant. With access to energy already at 80% in the country and scattered settlement patterns and geographic / topographic challenges, it became apparent during the PPG phase that mini-grids may only be suited to a small number of rural electrification areas. Identifying the likely size of the market therefore became a priority to inform the sector development and busines model for the country. The World Bank will support the development of a least cost electrification ?base? map, while the AMP will support the development of additional data

Outputs with budget at Concept Note		Outputs with budget at CEO ER		Change	Justification
1.2 Mini-grid DREI techno-economic analyses carried out to propose most cost-effective basket of policy and financial derisking instruments.		1.4 Minigrid DREI techno-economic analyses carried out to propose most cost-effective basket of policy and financial derisking instruments and contribute to AMP Flagship Report on Cost Reduction		Output wording adjusted and renumbered.	The wording of this output has been adjusted to better reflect the linkages between this output and activities for a proposed flagship AMP report under Component 1 (Knowledge Tools) of the AMP Regional Child Project. These activities have been identified in the PPG Phase of the Regional Child Project. The change aims to strengthen and emphasize the role of DREI in AMP, where the Regional Project will now produce a key flagship report on cost-reduction using the DREI methodology drawing from DREI analyses and content generated across all AMP national Child Projects.

Outputs with budget at Concept Note		Outputs with budget at CEO ER		Change	Justification
1.3 Institutional set-up for rural electrification assessed and supported, and institutional capacity building provided on technical, managerial, and regulatory issues.		1.2 An inclusive national dialogue to identify minigrid delivery models, a vision and roadmap is facilitated, clarifying priority interventions for an integrated approach to off-grid electrification.		Assessment and support for the institutional set-up and capacity has been removed and replaced with support for a National Dialogue on mini-grids.	This is one of the key changes made to the menu of possible outputs and activities for national child projects. Unlike other African countries, Eswatini has not seen a spontaneous uptake of mini-grids. The first pilot project to electrify a residential community is under development by the EEC. Within this untested and as yet undefined market environment, at this very early stage for mini-grids in the country, the AMP aim is on pre-emptively addressing risks and creating a universally relevant set of resources, thereby establishing a platform that can support any preferred policy direction. Support for sustained and inclusive national dialogues will be provided by the AMP in order to build a national consensus on minigrid delivery models on the basis of which large-scale deployment of minigrids can be accelerated and have a sustainable impact. The decision-making process governments undertake to select the most suitable minigrid delivery

Outputs with budget at Concept Note		Outputs with budget at CEO ER		Change	Justification
1.4 Capacity building provided to public officials (regulator, ministries) specifically to design procurement/ tender processes that incorporate cost-reduction levers and innovative business models.		1.3 Capacity building provided to public officials (regulator, ministries) to identify and incorporate cost-reduction levers and innovative business models.		Renumbered and revised to broaden the scope of capacity building related to cost-reduction levers and innovative business models i.e. not only as it relates to procurement / tender processes.	As already noted, the absence of spontaneous mini-grid developments points to a range of risks and barriers to private sector participation in the country that make it unlikely for conventional mini-grid developers to develop, own and operate a mini-grid system in Eswatini. Early indications are that an Energy Services Company (ESCO) model could be an appropriate delivery model to attract private sector participation. Within the current uncertainty, the scope of the output retained its focus on cost-reduction levers and innovative business models, but broadened the focus to allow agility in response to the evolving delivery context.

Outputs with budget at Concept Note		Outputs with budget at CEO ER		Change	Justification
Component 2? Business Model Innovation and Private Sector	-	Component 2? Business Model Innovation with Private Sector	-	Slight wording adjustment	The change was made to better signal the importance of private sector engagement for business model innovation. Usually, the delivery model determined for a country will be a blend of government and private sector engagement. The exact mix will be locally dependent but some degree of private sector participation is expected to develop minigrid pilots under Component 2.
Outcome 2. Innovative business models based on cost reduction operationalized to support and strengthen private participation in minigrid development	(INV) $ 277,611 (TA) $ 107,905	Outcome 2. Innovative business models based on cost reduction are operationalized, with strengthened private sector participation in renewable energy minigrid development	(INV) $ 302,111 (TA) $ 59,405	Slight wording adjustment	The change was made to emphasize the importance of engaging private sector participation to operationalize innovative business models.

Outputs with budget at Concept Note		Outputs with budget at CEO ER		Change	Justification
2.1 Pilot(s) developed, including on productive use/innovative appliances and modular hardware/system design, leading to cost-reduction in mini-grids and sufficient growing demand for mini-grid systems.		2.1 Expansion of public utility mini-grid pilot to incorporate Productive Use of Energy (PUE), innovative appliances and small business development, to demonstrate opportunities for improved feasibility of mini-grid systems for rural households.		The output was amended and split into two specific pilot projects demonstrating two approaches to productive use/innovative appliances and modular hardware/system design, leading to cost-reduction in mini-grids.	The revision allowed specific business model innovations / approaches to be piloted in typical settings where mini-grids are expected by the government to support rural electrification in the country. 1. The PUE overlay pilot seeks to demonstrate (i) the

Outputs with budget at Concept Note		Outputs with budget at CEO ER		Change	Justification
		2.2 Greenfields pilot developed demonstrating productive uses use/innovative appliances and modular hardware/system design, leading to cost-reduction in minigrids.			contribution of productive uses of energy and efficient appliances on minigrid capacity factor, revenue and business case, (ii) the benefit of business development support partnerships for minigrid projects, and (iii) the impact on socio-economic indicators. In terms of the AMP areas of opportunity (Figure 1), piloting a PUE overlay seeks to demonstrate productive uses of electricity to reduce costs and enable minigrid development at scale. Data collected from the pilot may also be used to opportunities around digitization and the use of data for minigrid cost reduction for future developments. Data from this pilot can help shape policy direction and inform capacity building more broadly. 2. The second pilot will focus on demonstrating productive uses of electricity to reduce costs, coupled with a private sector EPC and/or elements of an

Outputs with budget at Concept Note		Outputs with budget at CEO ER		Change	Justification
2.2 Strengthen capacity of potential tender bidders (private sector developers) to consider innovative business models and cost-reduction levers. 2.3 Strengthen capacity of winning tender bidders (private sector developers) to develop and implement innovative business models and cost-reduction levers.		2.3 Strengthen capacity of potential developers and operators to consider design parameters, innovative business models and cost-reduction levers, to improve project feasibility, with practical experience drawn from both pilot projects.		Focus has been broadened from winning tender bidders (private sector developers) to potential developers and operators and deliberately incorporating experience from pilot project ?proof of concept? business models in the capacity building.	There are no tenders planned by government at this stage and the procurement approach and role of the private sector with respect to mini-grids in Eswatini has not received adequate consideration to confine the focus of capacity building to potential bidders or winning bidders. The pilot projects are expected to provide valuable, in country experience with innovative business models that is essential to advance capacity building.

Outputs with budget at Concept Note		Outputs with budget at CEO ER		Change	Justification
2.4 Support provided to establish and grow a national industry association for private sector developers.		N/A		Removed.	Market immaturity (no spontaneous uptake of or active mini-grid in the country at PPG phase) and uncertainty regarding the contribution of mini-grids in Eswatini, size of the market, preferred business model and role of the private sector in mini-grid development, meant that the establishment of an industry association for private sector developers would be premature. The budget was reallocated to support an early ?proof of concept? business model in the productive use of energy overlay on the first, newly constructed solar PV mini-grid pilot project.
3.1 Design support, including development of operational guidance, provided for MG Funding Facility (MFF, or equivalent financial mechanism) under the Rural Electrification Fund.	$ 121,067	N/A	$ 0	Removed	Because of limited cash co-finance, the AMP will not be able to cover the full scope of interventions foreseen at Concept Note stage. Based on the very early stage of mini-grid development, the uncertainty regarding the role

Outputs with budget at Concept Note		Outputs with budget at CEO ER		Change	Justification
3.2 Innovative financing solutions for mini-grid development are identified and implemented through the MFF (or equivalent) with supporting human and institutional strengthening.		N/A		Removed	mini-grids will play in the country and the selected strategy for Eswatini (as described in the country specific TOC), this component was removed, and the available funding reallocated.
3.3 General market intelligence study on mini-grids prepared and disseminated amongst public officials and finance community.		N/A		Removed	
3.4 Feasibility study support provided to mini-grid developers, creating a pipeline of investible assets.		N/A		Removed	
Component 3 (Originally Component 4 in the Concept Note) Data, Knowledge Management and Monitoring and Evaluation	$ 108,696	Digital, Knowledge Management and Monitoring and Evaluation	$ 181,696	Slight wording change and renumbered	Updated to reflect the expanded focus on digital and data digitization as enabler for minigrid cost reduction and scaling. Renumbered because the original Component 3 was removed for Eswatini.

Outputs with budget at Concept Note		Outputs with budget at CEO ER		Change	Justification
4.1 Lessons learned captured and disseminated at the national level		3.4. Active interface with regional project established, including, but not limited to, via (i) participating in Communities of Practice and (ii) capturing and sharing lessons learnt at national and regional level.		Renumbered and expanded to incorporate both lessons learnt and Communities of Practice as part of the critical interface with the regional project.	This entire Component has been significantly bolstered to leverage the available data and knowledge both within the country and the regional project as an important lever in the reduction of investment risks. Lessons learnt and Communities of Practice have been combined into one Output and the link to the regional project reinforced to ensure the country benefits from the wealth of knowledge resources and information sharing among all AMP participating countries across the continent. The change was made to establish a clear link via an output between the national child projects and the regional child project.

Outputs with budget at Concept Note	Outputs with budget at CEO ER	Change	Justification
4.2 Replication plan (including investment plan) for scaling up rural energy access developed	-	Replaced with digitization focus	Common challenges among minigrids throughout the region has underscored the importance of data to inform planning and knowledge sharing to propel the sector past repeat pitfalls of over-sizing, underutilization of capacity, and predominantly non-productive consumer base, among others. Accordingly, the AMP has intensified the focus on data and digitization as a key enabler for scaling. Two outputs have been added in support of this focus, (i) to develop strategy, and (ii) to implement a digital platform. See new Outputs 3.2 and 3.3 below.
4.3 Knowledge network / Community of Practice established to promote MG development / rural energy access	3.5 Knowledge network established to promote minigrid development / rural energy access.	Slight wording change and renumbered	N/A

Outputs with budget at Concept Note		Outputs with budget at CEO ER		Change	Justification
4.4 A Quality Assurance and Monitoring Framework for measuring, reporting and verification of the sustainable development impacts of MGs, including GHG emission reductions is developed and operationalized		3.1 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.		Renumbered and amended to include: ??based on standardized guidance from the regional project.?	Wording of this output has been amended in recognition of the linkage to the regional project and harmonization across all national projects. The change was made to establish a clear link via an output between the national child projects and the regional child project. The latter will provide support for standardizing the Quality Assurance and Monitoring Framework (QAMF) that national ?child? project pilots will use to report back on relevant performance indicators ? providing visibility for program-wide AMP results and case studies and contributing to close knowledge gaps in the sector.

Outputs with budget at Concept Note		Outputs with budget at CEO ER		Change	Justification
N/A		3.2 A Digital Strategy is developed and implemented, including linkages to and following guidance from the regional project		New output created	The change was made to establish a clear link via an output between the national child projects and the regional child project. At the same time, this output was created to reflect the importance of each national child project developing, with support from the regional project, a strategy to harness the opportunities around digitalization in the minigrids sector.
N/A		3.3 Minigrids digital platform implemented to run tenders and manage data from pilots, and to support minigrids scale-up and cost-reduction		New output created	Change made to include a digital platform which will provide key functionality for the projects in terms of acting as the (i) national digital convening platform for key stakeholders (public/private), (ii) providing ongoing data gathering and M&E on minigrids, including linking to the AMP regional project and (iii) acting as the mechanism for tenders for minigrid developers/sites.

Outputs with budget at Concept Note	Outputs with budget at CEO ER	Change	Justification
N/A	3.6: M&E and Reporting, including (i) Conducting inception workshop and preparing report, (ii) Ongoing M&E, (iii) Mid Term Evaluation and (iv) Terminal Evaluation	New output created	Introduced to ensure compliance with M&E requirements and plans and to ensure progress is tracked and reported on. This change was made following UNDP guidance to reflect M&E activities in the Results Framework.

The preliminary indications of co-financing at Concept Note stage have also been updated to reflect the following confirmed commitments:

Sources of Co-financing at Concept Note	Name of Co-financier	Type of Co-financing	Investment Mobilized	Amount ($)	Changes in Co-financing at CEO ER	Justification
Recipient Country Government	Ministry of Natural Resources and Energy (MNRE)	Grant	Recurrent Expenditure	3,000,000	Increased and differentiated: In kind - $8,234.16 Complementary public investment - $13,605,442.18	Aligning with the newly defined project outputs
Private Sector	Eswatini Electricity Company	Grant	Recurrent expenditures	230,000	256,000	The EEC to contribute the base infrastructure for the PUE overlay pilot project at Sigcineni.
Recipient Country Government	Eswatini Standards Authority	In-kind	Recurrent expenditures	100,000	No commitment	No relevant parallel activity

Sources of Co-financing at Concept Note	Name of Co-financier	Type of Co-financing	Investment Mobilized	Amount ($)	Changes in Co-financing at CEO ER	Justification
Donor Agency	Japan International Cooperation Agency (JICA)	Grant	Investment mobilized	2,000,000	No commitment	No relevant parallel activity
Donor Agency	Italian Government / Africa Centre for Climate and Sustainable Development	Grant	Investment mobilized	1,000,000	No commitment	No relevant parallel activity
Donor Agency	World Bank	Loan	Investment mobilized	4,000,000	Loan - $154,053.00	Corresponding contribution (taking the form of a loan to the Government) has been included in MNRE commitment
Recipient Country Government			Recurrent expenditures		New 381,411	Reflecting commitment to host and staff the PMU
Recipient Country Government			Investment mobilized		New 59,405	Reflecting commitment to develop minigrid framework
GEF Agency			Recurrent expenditures			
GEF Agency			Recurrent expenditures			
			Recurrent expenditures			
Total Co-financing				10,330,000	Amended total 19,424,228	

[1] Kingdom of Eswatini, Energy Masterplan 2034. Ministry of Natural Resources and Energy. October 2018. A high growth scenario would see this achieved by 2022, in line with the ambitions of the Government of the Kingdom of Eswatini?s Vision 2022.

[2] Kingdom of Eswatini, Energy Masterplan 2034. Ministry of Natural Resources and Energy. October 2018.

[3] These funds are not dedicated to rural electrification, but can be accessed by communities for any development initiatives including electrification projects. Consequently, many communities have submitted applications for electrification projects.

[4] Government implementing agencies such as the Eswatini Electricity Company (EEC), Microprojects Unit under the Ministry of Economic Planning and Development (MEPD) and the Rural Development Fund (RDF) under the Ministry of Tinkhundla Administration and Development (MTAD).

[5] World Bank ?Network Reinforcement and Access Project (P166170),? approved June 27, 2019.

[6] UNEP, ?Energy Consumption and Production, Swaziland,? available at https://wedocs.unep.org/bitstream/handle/20.500.11822/20595/Energy_profile_Swaziland.pdf?sequence=1&isAllowed=y. Accessed on 28 November 2020.

[7] A figure of 1.5 kg CO2 per kWh of wood-produced energy was used, per: http://blueskymodel.org/kilowatt-hour.

[8] 2003 National Energy Policy

[9] Eswatini has a Power Purchase Agreement with ESKOM 9South Africa) where it buys its bulk of electricity (59%) and a smaller percentage from the SAPP (15%, mostly through the Day Ahead Market). Information based on 2018/19 EEC Annual Report.

[10] Eswatini Electricity Company Annual Report 2018/19

[11] An emission factor of 0.8438 tCO_2/MWh has been derived using data from the GCF Concept Note for the Eswatini Energy Programme.

[12] 10MW Luvumisa solar PV plant committed and feasibility studies for 30MW expansion at Lower Maguga hydro power plant.

[13] Expected commercial operation date (COD) for solar project is 2022 and for biomass is 2024.

[14] Scope includes, among others, development of a licensing framework, ownership and operation of minigrids, pricing models, tariff setting, safety, compliance, monitoring requirements, standards, power quality, service quality and grid integration.

[15] Vertically integrated, state owned power utility.

[16] Lifeline tariff, prepaid SZL 1.65/kWh and residential tariff, prepaid: SZL 1.75/kWh.

[17] ESMAP/SE4All measures the affordability of grid electricity by comparing the cost of a Standard Consumption Package ? defined as 365kWh per year ? to a maximum energy threshold, set at 5% of total household expenditure. At this threshold, all households should be able to afford the SCP, however FinScope (2018) data shows that 45% of adults spend less than the cost of the SCP on utilities ? including water ? per year, and 20% spend even less than a quarter of the cost of the SCP.

[18] eSwatini. Energy and the poor, unpacking the investment case for clean energy. 2020. UNCDF and UNDP

[19] Four respondents completed the survey. All four had considered developing a minigrid in the country. They rated 6 risks related to the policy environment, technology and finance on a scale of 1 ? 5 where 5 indicated high and 1 low risk.

[20] In Eswatini, an inkhundla (plural: Tinkhundla) is an administrative subdivision at the third level of governance and effectively functions as a local government institution. The Ministry of Tinkhundla Administration and Development website presently lists 59 Tinkhundla centres in Eswatini.

[21] Lazard Levelized Cost of Energy Analysis, version 14. October 2020.

[22] https://africaledspartnership.org/2019/01/30/african-mini-grids-community-of-practice-amg-cop/

[23] EEP Africa. 2020. Energising Resilience, Climate Co-Benefits from Clean Energy Projects.

[24] Co-benefits including local value chains and diverse livelihoods, Self-reliance including food and energy security, and resilient infrastructure such as health care.

[25] UNDP & ETH Zurich (2018). Derisking Renewable Energy Investment: Off-Grid Electrification. United Nations Development Programme, New York, NY and ETH Zurich, Energy Politics Group, Zurich, Switzerland.

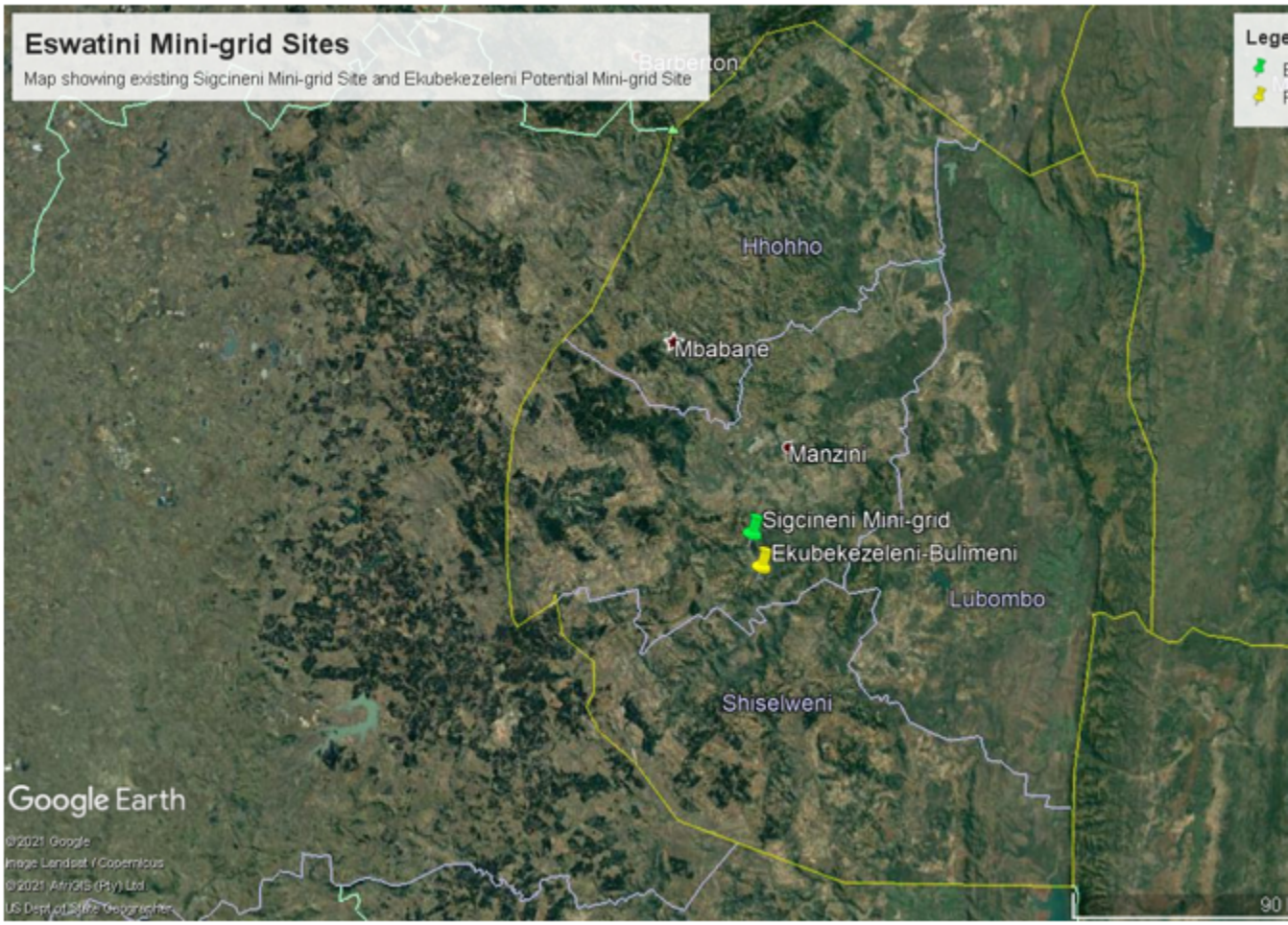
[26] Multiple sources including: https://www.seforall.org/covid-19-response and https://ecdpm.org/events/green-gender-driven-covid-19-recovery-africa/

[27] PUE can be found in: agriculture (e.g. irrigation, grain milling, electric fencing), manufacturing (e.g. carpentry, tailoring, welding, and looming), and the service sector (e.g. bars and restaurants using electric lights, sound systems, refrigerators, charging stations for mobile phones). Common use applications include electricity used for potable water, public lighting, education, health (e.g. refrigeration of vaccines and anti-venom).

1b. Project Map and Coordinates

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

Two project sites are identified for the pilot projects under Component 2, Output 2.1 and 2.2 and their geographic location relative to each other and the country borders in the map below.



Pilot site 1: Sigcineni
The village is isolated by the Ngwempisi river and accessible only by footbridge (no road access) with GPS coordinates: 26?41?45.26? S, 31?17?25.96? E, elevation 461m.

(Provisional) Pilot site 2: Energy Hub, Ekubekezeleni, Bulimeni area
The pilot site is located at the following GPS coordinates: 26?45?29? S; 31?18?33? E, elevation 939m.

1c. Child Project?

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

The programmatic approach aims to achieve greater impact by creating new minigrid markets across the continent, which, in aggregate, will create scale and momentum, attracting private sector interest and investment. The programmatic approach will also allow for a broader sharing of good practice, and create economies of scale in providing program services.

The Africa mini-grids program has been designed to reduce the risks and therefore the costs of developing mini-grids by targeting four components i.e. (i) policy and regulation, (ii) innovative business models, (iii) innovative finance and (iv) data and knowledge management and dissemination. In Eswatini, the focus will be on supporting the policy and regulatory environment, demonstrating innovative busines models and buiding and sharing of knowledge resources. To achieve a program-wide impact, the project components and results frameworks have been harmonized to achieve cost reductions at a national level, while also contributing to the collective outcomes of reduced costs and improved market attractiveness across the continent. Accordingly, the Eswatini child project will feed into multiple program level indicators. Most importantly, the experience and knowledge gained at a national level, will be aggregated at regional level across the diverse group of countries participating in the AMP and in turn shared more broadly to encourage the development of clean energy mini-grids beyond the scope of the AMP.

2. Stakeholders

Please provide the Stakeholder Engagement Plan or equivalent assessment.

The Stakeholder Engagement Plan (SEP) is available as Annex 9 in the Project Document.

A number of engagement methods and communication mediums will be employed to ensure active engagement with stakeholders and to overcome any remaining COVID-19 restrictions and social distancing recommendations that may still be in place. These include:

1. In-person meetings, where relevant, taking the form of, among others, (i) consultation workshops, (ii) interviews and focus groups, and (iii) community based consultations and focus groups.

2. Written communications in the form of (i) emails, (ii) letters, (iii) survey forms, and (iv) Project brochures and manuals.

3. Online meetings and phone calls. Where relevant to the stakeholder group, virtual communication may still be preferred since it is quicker and easier compared with email and letters, and a viable alternative to in-person meetings. The project website and other online platforms will also allow for engagement.

4. Capacity development and training. Both pilot projects will engage community stakeholders through training and capacity development. Capacity building is also part of the engagement with policy and decision-makers as well as the renewable industry in the country, region and regional project.

5. Other engagement activities are expected to include status quo and needs assessments among pilot project communities and community consultation.

Although the mode of communication may vary according to task and participants, all consultations and engagement activities will be undertaken with the goal of ensuring full participation of relevant stakeholders, whereby all participants will be provided sufficient notice to prepare well and provide input for the project. Moreover, the AMP in Eswatini project will also use all possible opportunities, i.e. workshops, meetings, trainings and awareness events, to promote diversity and gender balance. Balanced representation of relevant stakeholders will be ensured by reaching out to both men and women and different groups through appropriate communication means and encouraging their participation, noting the most socially and culturally acceptable method of communication and language and consultations for each group of stakeholders.

The frequency, means and timing of engagements per stakeholder group are described as part of the SEP, Table 14 Page 153. Given the relatively small budget for the project, separate funds were not allocated for stakeholder engagement. However, these activities are incorporated into the National Dialogue, capacity building, project development and monitoring activities under Component 1, 2 and 3.

In implementing the SEP, the following requirements will apply:

? All communication will be available in English, one of two official languages and the official medium of instruction in Eswatini. English will be used to facilitate a common and broader project understanding outside of the country borders.

? At the discretion of the PMU, translations of printed material, written and spoken communication will be available in Swazi, official and national language of Eswatini. At the very least, communications to impacted communities, i.e. beneficiaries of the pilot projects, must be available in both English and Swazi.

? The COVID-19 pandemic has had an impact on stakeholder engagement, limiting engagement to online channels and excluding communities with limited or no access to online facilities. The extent to which this will continue into the implementation phase is uncertain, but should it persist, alternate opportunities to allow for information flow and ensure participation must be implemented. Examples may include delivery of information through the local radio, paper posts on key local community places, word to mouth through local leaders, among others.

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;

Member of Advisory Body; Contractor;

Co-financier;

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

Executor or co-executor;

Other (Please explain)

3. Gender Equality and Women's Empowerment

Provide the gender analysis or equivalent socio-economic assesment.

The Gender Analysis and Action Plan are available as Annex 11 in the Project Document.

As an absolute monarchy with male head of state, Eswatini is a *de jure* and *de facto* patriarchy. In Eswatini, two legal frameworks apply. The first is uncodified Eswatini law and customs (together known as customary law), and the second is a combination of partly codified Roman and Dutch legislation (civil law)[1]. The 2005 Constitution guarantees basic rights, and the country?s international human rights commitments. At the same time, the King?s supreme executive authority, established by emergency decree in 1973, has remained in place. This dynamic has resulted in the halting progress and/or delayed enactment of several constitutional provisions related to gender equality.

Eswatini?s is a patrilineal culture where, according to tradition, women join their husbands? households. In 2019 the Eswatini High Court ruled that the common law doctrine of marital power (giving a husband the ultimate decision-making power over his wife and the matrimonial property) is unconstitutional as it discriminates against women and denies their constitutional right to equality. This ruling builds on progressive legislative reforms initiated in 2018 to further the promotion and protection of women and girls? rights. Eswatini has also committed itself to a number of regional and international instruments to promote gender equality, including the Convention for the Elimination of All Forms of Discrimination Against Women (CEDAW), which Eswatini ratified without reservation, and the Southern African Development Community (SADC) Declaration on Gender and Development.

AMP project measures supporting gender equality in Eswatini will have to be cognizant of the recent timing of these reforms.

Both UNDP and the GEF require a gender responsive approach, an approach in which the particular needs, priorities, power structures, status and relationships between men and women are recognized and adequately addressed in the design, implementation and evaluation of activities. The approach seeks to ensure that women and men are given equal opportunities to participate in and benefit from an intervention and promotes targeted measures to address inequalities and promote the empowerment of women. These principles underpins the action plan.

The Gender Action Plan for Eswatini attempts to accomplish two primary tasks, first to make women ? their needs and potential contributions ? visible in the sector (including to government planners, development partners, and infrastructure developers), and second to demonstrate the techniques and processes that can make mini-grids an engine for opportunity for all individuals regardless of gender. Documentation and analysis of results from the latter, then, are also expected to help strengthen the former.

The gender strategy and action plan is tailored to the project Components, as follows:

- **Component 1, Policy and Regulation**: The gender strategy as applied to this component is to increase the visibility of women in the sector. As women remain historically disadvantaged

with respect to landholding and asset accumulation, as they own and manage (on average) smaller businesses, as a large share of their production is not monetized/quantified, traditional yardsticks for spotting mini-grid opportunities (e.g., geospatial economic indicators, national statistical accounts) likely present a view biased towards male-centred opportunities. For this reason, it will be important to deliberately explore the concept of ?hidden? female opportunities as well.

? **Component 2, Business Model Innovation and Private Sector**: The gender strategy for this component calls for women and men to be co-equal beneficiaries of two productive use pilots. In this, the project should seek to execute concrete transactions of the type that are theoretically explored in the opportunity mapping/inventory activity (i.e., Output 1.1). Ultimately, the project hopes to confirm that it is feasible, even economically desirable, to expand mini-grid services to a wider swath of individuals, men and women, taking up PUE.

? **Component 3, Digital, knowledge management and M&E**. The gender strategy for this component is focused on capturing and utilising gender dissagregated data and information to produce insights and learnings that can enhance future developments.

Annex 11to the Project Document provides a detailed gender analysis and gender action plan to accompany the AMP project implementation. Based on the results of the gender assessment, the action plan was prepared to provide a ?gender lens? over the project, with gender actions to support each of the project outputs.

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[1] Social Institutions and Gender Index, ?Kingdom of Eswatini.?

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

Private sector (developers, supply chain, investors, financial intermediaries, etc.) involvement in mini-grid cost-reduction is central to the program?s approach. Reducing risks and achieving cost reductions are key to attract private sector participation in the development of clean energy mini-grids. Accordingly, a range of activities have been included to encourage, engage and support the private sector. Under Component 1, strengthening the policy and regulatory context with the formulation of a mini-grid vision and roadmap for the country and assisting with the identification of the most viable potential sites, should encourage investments. Component 2 directly targets the interest of private sector players with the focus on piloting and demonstrating mini-grids that incorporates productive use and innovative business models. It also incorporates targeted capacity building with the development of a training curriculum and course offering related to clean energy mini-grids in general combined with country specific policy developments, direction from the National Dialogue and experience from pilot projects. Component 3 also includes support for the establishment of a knowledge network for industry members to facilitate networking and knowledge sharing, drawing from national and regional project experience and knowledge resources.

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):

The most significant risks (including climate change, potential social and environmental risks) that might prevent the project objectives from being achieved and the proposed measures that address these risks at the time of project implementation, were identified during the project design as:

Description of risk (grouped by category)	Level of risk (I, L)[1]	Mitigation
Strategic Risk		
Within the specific country context, minigrids may not provide a cost-effective solution for the ?last mile? electrification or may only do so for a small selection of sites. This will be particularly true if minigrids systems cannot be adequately scaled and have to compete with the average connection cost for grid extension[2]. If minigrids cannot reasonably contribute a least-cost electrification solution, it will compete for Government funding with other, more appropriate options. In this case, its contribution in the country may be small and may not attract private sector investment at scale.	Moderate (I = 2, L = 4)	The National Dialogue will be well-placed to assess the realistic contribution from minigrids, informed by the various knowledge resources[3] developed by the AMP project, as well as the country?s own experience with pilots and the minigrid framework. With the formulation of the proposed Vision and Roadmap (Output 1.2), the appropriate application of minigrids in Eswatini can be articulated, drawing on the insights gained from AMP implementation. This roadmap will also enable discussions with the Ministry of Finance for appropriate funding allocations. A significant focus of the AMP interventions in Eswatini is to reduce the costs of future developments by creating an environment more conducive to minigrid development. With this emphasis, the AMP contribution should benefit future minigrid development irrespective of the details of the Vision and Roadmap.

Description of risk (grouped by category)	Level of risk (I, L)[1]	Mitigation
The size of the market for minigrids in Eswatini may be too small to attract active private sector participation, substantive private sector investment and commercial financing at scale. Scalability is critical to achieve adequate cost reductions and commercial viability of minigrid operations.	Substantial (I = 4, L = 4)	Early assessment of the minigrid potential with mapping will allow an evaluation of the likely contribution of minigrids and the private sector role in the country. Experience gained with pilot projects will be relevant to any future minigrid developments, irrespective of market size or delivery model.
Limited experience with minigrids by all role players in Eswatini may limit the view on and perceived value of lessons and best practices from other countries, leading to a repeat of similar failures and lessons.	Substantial (I = 4, L = 4)	The National Dialogue and strong linkage with regional platform will facilitate proactive engagement with the established regional knowledge base. Capacity building interventions, drawing on experience and best practices from across the region, have been included for both public officials and minigrid developers. Component 3 has been structured to actively link between the regional and national projects and to capture and disseminate lessons learned, case studies, communication and training material at national level. Information sharing will also be facilitated by the establishment of a knowledge network or Community of Practice among potential industry participants.
Limited or no interest from the private sector to participate in minigrid projects in the format / roles / functions / capacities foreseen, may confine the rollout of minigrids in the country.	Substantial (I = 4, L = 3)	Engage private sector players in developing pilot project structures that are adequately attractive to attract interest in participation. Proof of concept business models to be used to demonstrate opportunities and recommend further amendments to encourage private sector participation. Community of practice created for private sector players to share knowledge and experience, to learn from each other as well as from national and regional experience. If needed, this experience coupled with the DREI may be used to inform a review of the policy direction and framework to further lower risks and barriers for implementation.
Political		
Failure to institute a coordinated policy position and response across country priorities and key government and energy role-players will (i) result in a suboptimal contribution to the developmental priorities for the country and (ii) complicate the environment for private sector role-players, discouraging participation in the sector and/or contribute to development costs.	Substantial (I = 5, L = 3)	The National Dialogue will facilitate an integrated response from government role-players across energy, environmental, economic and socio-economic development objectives.
Operational		

Description of risk (grouped by category)	Level of risk (I, L)[1]	Mitigation
With commissioning planned during the first semester of 2021, it is assumed that consumption data for the Sigcineni pilot project will be available to serve as a baseline for the pilot initiatives. This will be a key input parameter to accurately assess the impact of different interventions. This will also be important data to inform the type (e.g. equipment size and operating hours) of interventions suitable for the community. Baseline data is key to a meaningful pilot ?proof of concept? contribution.	Moderate (I = 3, L = 2)	It is suggested that an agreement be put in place between the Ministry and EEC during project inception phase to ensure data is collected and available for the AMP pilot.
The site in Ekubekezeleni, Bulimeni area, selected for the Energy Hub may not be suitable to a minigrid system anchored in PUEs as intended for the Energy Hub model. The priority focus of the AMP in Eswatini is on demonstrating alternative business models more likely to attract private sector investment. Accordingly, if this site cannot accommodate an Energy Hub with a strong PUE anchor, an alternate site will have to be identified. This will impact delivery timelines for the project and potentially also stakeholder relationships at the target site. This risk is highly likely considering the remote location, accessibility challenges and scattered distribution of a small number of households.	High (I = 5, L = 5)	The selected site is indicative of the typical minigrid electrification application in Eswatini and therefore of interest for the pilot. A number of PUE options have been identified that may be suited to the remote location and accessibility challenges. These potential PUEs include activities that do not rely on perishable produce and/or frequent transportation with strong linkages to markets, notably: Peanut butter production, Microwork Services and/or Egg Incubation. A (pre-)feasibility assessment will be critical and has been included in the workplan as an early implementation activity. If the site is not feasible, an alternative will have to be selected.
The community around the potential Energy Hub site in Ekubekezeleni, Bulimeni area, consists of 92 households, of which 30 are likely to be connected by the national grid. The remaining households may be served by a combination of off-grid solar and the minigrid, informed by the pre-feasibility study and geography. This will result in differentiated treatment of community members that may cause discontent.	High (I = 5, L = 5)	Active stakeholder engagement will be critical to address perceptions regarding different service types and to address concerns regarding different tariffs (if any). Where possible, harmonized tariffs for households will likely be required.

Description of risk (grouped by category)	Level of risk (I, L)[1]	Mitigation
The COVID-19 pandemic is, at the time of writing, at a point of inflection. Variants and second/third waves of infections are emerging worldwide with concomitant reactions from authorities, ranging from mild restrictions on movement and curfews, to strict lockdowns and strict domestic travel restrictions. The most robust forms of restrictions could negatively impact activities requiring the physical presence of team members and stakeholders. At the pilot level, risks could relate to: - Supply chain delays or disruptions. Delays with importing or local availability of material and equipment due to reduced manufacturing capacity impacting planned delivery timelines. - Availability of construction teams. Increased absenteeism of resources due to sickness, the need to care for others, or restrictions on travel may impact project efficiency or progress. - Time and cost impact of COVID compliance. Project timelines may be delayed when scheduling around social distancing requirements and/or costs may increase to ensure compliance with COVID-19 guidance.	Moderate (I = 4, L = 2)	Scheduling of activities such as site development and on-site training that may require physical presence in certain localities has been front-loaded, allowing for a buffer in case the sanitary situation deteriorates to the point of preventing the swift realization of these activities. Online communication and teleconferencing options will be investigated and given preference to facilitate social distancing, where needed. Development at pilot sites will benefit from: - Performing a schedule assessment or time-impact analysis, including examining the status of material procurement on projects. Identifying most critical materials, equipment, products for procurement and engaging suppliers to prioritize and expose key vulnerabilities. - Identifying key resources and skills and possible alternatives in case of absences. - Prioritizing and facilitating vaccinations of workers if possible. - Assessing cost impacts of enhanced cleaning, reduced workforce, and other modifications. Assessing what services can be continued offsite to limit schedule delays.
Regulatory risk		

Description of risk (grouped by category)	Level of risk (I, L)[1]	Mitigation
It is assumed that the minigrid framework will be in place when the AMP starts. This is an important milestone to create an enabling regulatory environment for private sector participation in minigrids. If not progressed as planned, regulatory uncertainty will present a hurdle for private sector involvement in the market.	Moderate (I = 3, L = 3)	ESERA has invited proposals for the development of the minigrid regulatory framework with a targeted completion date in the first half of 2021. Should this not be finalised as foreseen, the AMP should reassess its focus in consultation with the Project Board in the changed context. If deemed necessary, project resources can be reallocated (adaptive management). This may include providing technical assistance or other support to ESERA, if needed. Pilots and other activities that rely on the framework being in place, can be regulated by contract as a mitigation measure.
An iterative process has proven critical to shape the minigrid regulatory framework. Failure to adequately address key enabling issues (e.g. tariffs, subsidies, grid integration) and/or incorporate experiences from pilot projects, any other developments in the country, as well as industry feedback might limit the contribution from minigrids towards the targeted outcomes for the country.	Substantial (I = 4, L = 3)	The National Dialogue has been established to facilitate collaboration, knowledge sharing and allow a feedback loop from pilot initiatives to key role-players. Information and discussion at this forum will provide valuable opportunity to assess whether outcomes are being achieved and/or to identify opportunities for enhancement. The development of a shared vision and roadmap for minigrid development in the country will provide further guidance and clarity.
Organizational Risk		
Limited experience with GEF-funded projects in the energy sector in Eswatini may require additional implementation capacity to understand and meet all prescribed reporting and administrative requirements.	Substantial (I = 4, L = 3)	Executing agency capacity assessments have been conducted. MNRE and ESERA have committed resources, including recurrent expenditures, through co-financing and PMU. Both MNRE and ESERA will benefit from being part of a broader program and learning from other countries? experiences. The regional project will also provide training to project teams and Executing agencys on monitoring and reporting requirements.
Cash budget available to fund dedicated PMU resources (Project Manager and Admin/Finance Assistant) is limited, relying heavily on co-financing from the Executing agency and/or responsible parties to fund or make available project staff. Without these staff, delivery of the project scope within the given timeframe will not be possible.	High (I = 5, L = 4)	The MNRE identified ESERA as responsible party to implement and manage the project delivery under the Ministry?s oversight. As such, ESERA will supplement the available project management resources with the necessary resources to fulfill implementation requirements.
Financial		

Description of risk (grouped by category)	Level of risk (I, L)[1]	Mitigation
If co-financing is not realized as anticipated, it will limit the contribution of the AMP and negatively impact GEF consideration of future projects.	Substantial (I = 5, L = 3)	Co-financing commitments from ESERA, EEC and MNRE have been confirmed and will be tracked on an annual basis. Co-financing confirmation from the World Bank and UNCDF for mapping is in place. Tracking and reporting of co-financing commitments will be done throughout project implementation. Additional co-financing and collaboration opportunities will be sought and leveraged during the implementation phase.
Social and Environmental (including climate)		
As an ?add on? to the EEC Sigcineni pilot project, there is a risk that inadequate measures have been put in place to safeguard social and environmental impacts of the project or that safeguards are inconsistent with the requirements of the AMP and GEF.	Substantial (I = 5, L = 3)	It will be critical to ensure compliance of the overall project with the necessary social and environmental safeguards. Discussions with the EEC Environmental Officer and the Eswatini Environmental Authority (EEA) has provided preliminary assurance that the project has been subject to rigorous environmental assessment, consideration and planning and will be managed in accordance with commitments made under the authorization by the EEA. It is required that all documentation for this project be made available to the AMP, reviewed and elaborated, if necessary, to ensure safeguards meet UNDP and GEF requirements. If safeguards cannot meet the requirements of the UNDP and GEF, the pilot project should be abandoned, and resources allocated to the Energy Hub pilot project.
Irresponsible handling of battery waste at pilot projects and future developments may present a risk to the social and environmental sustainability of minigrids.	Substantial (I = 5, L = 3)	The EEC pilot project was required to include a waste management plan for both battery and solar PV panel waste to obtain environmental authorization. It is therefore an existing consideration of the EEA and focus of environmental impact assessment and authorization.
Minigrid system, structures and operation would be vulnerable to the climate hazards and risks associated with extreme and changing weather conditions.	Moderate (I = 4, L = 2)	Climate risk has been considered and mitigated into the planning, design, structure and operations of the pilot sites. Detail of the specific mitigation measures are included in Annex 17 of this document.

Description of risk (grouped by category)	Level of risk (I, L)[1]	Mitigation
External environmental factors, for example the effects of climate change (such as the volume and quality of rainfall, rising temperatures, floods, droughts, violent winds, earthquakes, landslides, severe winds, or storm surges) could lead to delay or abandonment of the project.	Low (I = 4, L = 1) [4]	This is an external risk to the project that will be mitigated in the context of a variety of other third-party activities from the Government. Furthermore, external environmental factors likely to be a risk will be considered within this project as part of the feasibility/assessment studies established in the ESMF for each site, which will use conservative assumptions to successfully operate.
Potential negative environmental impacts resulting from the project, either routine or non-routine based, could lead to adverse local, regional, and/or transboundary impacts causing a delay or abandonment of it.	Moderate (I = 3, L = 3)	During project preparation, similar project activities have been visited and/or consulted by the team of experts to evaluate the risks. Principal environmental risks have been framed at this stage (Project Preparation Grant, PPG) and they will continue to be assessed along the entire project cycle for each chosen site. Based on that, a pertinent due diligence project development process, monitoring of operations, and active intervention are foreseen according to such environmental safeguards established in this project through the ESMF to ensure operation within the established parameters and in compliance with the applicable regulations.
External social factors, like for example political unrest, COVID persistence and other issues, could lead to delay, abandonment of the project or decrease the ability of people to pay for the services.	Moderate (I = 3, L = 3)	This is an external risk to the project that will be mitigated with a variety of other, third-party activities from the Government as per their national social agenda independent to the AMP. Furthermore, external social factors likely to be a risk will be considered within this project as part of the feasibility/assessment studies established in the ESMF for each site, which will use conservative assumptions to successfully operate.
Potential negative social impacts resulting from the project, either routine or non-routine based, could lead to adverse local, regional, and/or transboundary impacts causing a delay or abandonment of the project.	Moderate (I = 3, L = 3)	During project preparation, similar project activities have been visited and/or consulted by the team of experts to evaluate the risks. Principal social risks have been framed at this stage (Project Preparation Grant, PPG) and they will continue to be assessed along the entire project cycle for each chosen sites. Based on that, a pertinent due diligence project development process, monitoring of operations, and active intervention are foreseen according to such social safeguards established in this project through the ESMF to ensure operation within the established parameters and in compliance with the applicable regulations.

Description of risk (grouped by category)	Level of risk (I, L)[1]	Mitigation
Potential negative impacts on the existing diesel generation supply chain and employment within the sector with the adoption of solar PV minigrids ? both at national level and pilot sites.	Low (I = 2, L=2)	Current data suggests that diesel use in the country is extremely limited, therefore confining the impact and risk of solar PV minigrids disrupting established industries and livelihoods. A aseline survey at the Sigcineni pilot site confirmed that none of the community members were previously using diesel generators. The status quo and excess available RE capacity suggest there is no risk of the pilot beneficiaries reverting to diesel generation, the project being sabotaged by diesel generators or of current employment opportunities being impacted. A similar baseline assessment will be done for the greenfield pilot once a site has been selected. A suitable response will be developed with any impacted parties identified. This will include capacity building within the target communities to optimally employ the available electricity for PUE and foster local economic development. Training will also cover the environmental benefits of utilising solar power, and the negative impacts of using environmentally harmful energy generation technologies such as diesel power. More generally, the project will work with the government of Eswatini and industry representative such as REAESWA to promote solar minigrids also as a viable and profitable means of income generation and business opportunity. The focus of such engagement will be on promoting job creation and highlighting the job opportunities in the renewable energy sector available to everyone, including those currently working with diesel generators.
Gender Equality and Inclusion		

Description of risk (grouped by category)	Level of risk (I, L)[1]	Mitigation
Failure to identify, consult with, and tailor support services for women-led businesses in the PUE add-on or Energy Hub pilot will skew benefit incidence towards men. Design of financing solutions and platforms that do not compensate for female-specific challenges (e.g., related to property ownership) may inadvertently restrict women?s participation in MG development.	Moderate (I=2, L=4)	Component 2 will account for male/female differences and gender norms, including tracking intermediate/instrumental participation indicators so as to promote gender balance in final outcomes through adaptive project management practices.
Electricity provision may alter gender relations in households and communities, which though expected to contribute to female empowerment could also lead to widening gender disparities, male backlash, even in extreme cases gender-based violence.	Moderate (I=5, L=1)	Techniques of ?outcome harvesting[5],? whereby open-ended conversations are periodically held with beneficiaries will be used to probe for possible negative changes in gender relations. If discovered, the instance will be recorded in a grievance log and locally appropriate and ethical conflict resolution techniques will be initiated.

The novel coronavirus (COVID-19) was declared a global pandemic on 11 March 2020. It has been far more than a health crisis, affecting societies and economies at their core. The situation in developing countries is even more tenuous. The IEA estimates that across Africa, COVID-19 has pushed 30 million people back into energy poverty. Despite timely instituting a response package to contain the spread of the pandemic and mitigate its impact on vulnerable households and businesses, the impact on economic activity and growth[1] in Eswatini is already noted[2]. Early work from the region provided some of the first evidence[3] on the socio-economic impacts among households and individuals in Sub-Saharan Africa. It points to the socio-economic effects of the pandemic, such as food insecurity, being disproportionately borne by households that were already impoverished prior to the pandemic. The pandemic has also impacted consumer affordability and increased the risk for vulnerable households to fall back into energy poverty.

The pandemic has highlighted the importance of access to electricity to power healthcare facilities, supply clean water for essential hygiene, enable communications and IT services for education or more broadly to connect people while maintaining social distancing. Access to clean energy is also expected to play a critical role in combatting the COVID-19 pandemic and catalyzing an economic recovery in its wake, particularly in African countries[4].

The multidimensional COVID-19 crisis creates opportunities for the project to mitigate country- and project-level impacts, to contribute toward green recovery and building back better, and also to leverage global responses to COVID-19 to deliver global environmental benefits and/or climate adaptation and resilience benefits. Access to reliable, affordable, clean energy will be crucial to support economic recovery. Not only are investments in off-grid renewable energy important levers to create jobs and generate financial savings but increasing energy access for the most vulnerable population creates

opportunities for local economic development that enhance resilience to shocks and crises. In developing the project in Eswatini, further opportunities were considered as they relate to (i) leveraging economic recovery and stimulus plans when defined, (ii) promoting the inclusion of electric cooking into the minigrid operators service offer for both pilot sites, (iii) health facilities as beneficiaries of minigrid pilots where possible, and (iv) using Communities of Practice activities to focus on COVID-19 impacts and opportunities (refer Annex 19 in the Project Document).

Over the medium to long term, access to affordable, clean energy will be crucial to support economic recovery, highlighting the significant potential opportunities for co-benefits from rural electrification in the fight against COVID-19. Yet, across the region, enterprises providing off-grid electricity connections are severely threatened by the disruptions caused by the pandemic.

At a project level, delivery of infrastructure projects, such as the minigrid pilot projects included under the AMP, are particularly vulnerable to supply chain disruptions, availability of implementation teams, access to rural communities, logistical and cost impacts of meeting health and safety compliance. At the broader project level, if a vaccine program in Eswatini is delayed or if variants emerge that can escape the existing vaccines, this could lead to knock-on effects in advancing key activities.

Likewise, ever-increasing climate risks present both risks and opportunities for minigrid developments. Minigrids lie at the nexus between rural electrification, climate resilience and sustainable development. The African Mini-Grid Community of Practice (AMG-CoP) ? a collaborative network of 16 African country governments? identified minigrids as a central element of developing a decarbonized, climate-resilient energy services sector for the millions of people in Africa who lack access to affordable, safe and clean energy. Green minigrids deliver climate change mitigation and resilience, while also advancing economic and social development benefits.

While minigrids contribute greater resiliency to the overall energy system they are themselves vulnerable to the impacts of climate change. Eswatini is prone and particularly vulnerable to natural disasters, likely to be affected by climate change in both occurrence and scale. Climate hazards and risks such as higher temperatures, strong winds and prolonged periods of drought interspersed with flooding, will threaten generation and distribution infrastructure and impact consumer demand. These risks are aggravated by the logistical challenges facing remote, rurally located communities with limited access to technical support, spare parts, and maintenance capacity to address mini-grid issues and disruptions. As climate risks are expected to increase to 2050, climate risks will demand due consideration in project planning, design and operation.

The project design has therefore taken cognizance of these escalating environmental and health risks.

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[1] Economic growth is projected to contract by 2.8 percent in 2020, mainly due the negative economic impacts associated with COVID-19 on key sectors. World Bank. Eswatini COVID-19 Response Emergency Development Policy Financing (P174447).

[2] IMF. Press Release No 20. of 274. IMF Executive Board Approves US$110.4 Million in Emergency Support to The Kingdom of Eswatini to Address The COVID-19 Pandemic. 29 July 2020; Lees, Adrienne; Mascagni, Giulia; Santoro, Fabrizio. 2020. Simulating the Impact of COVID-19 on Formal Firms in Eswatini. MTI Practice Notes;. World Bank, Washington, DC. ? World Bank.

[3] Josephson, Anna Leigh; Kilic, Talip; Michler, Jeffrey David. 2020. *Socioeconomic Impacts of COVID-19 in Four African Countries*. Report No.: WPS 9466. World Bank Group. Published: 3 November 2020.

[4] Multiple sources including: https://www.seforall.org/covid-19-response and https://ecdpm.org/events/green-gender-driven-covid-19-recovery-africa/

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[1] I = Impact; L = Likelihood

[2] e.g. for Sigcineni to electrify 21 households using a minigrid, it cost around 3.2 million Emalangeni yet for grid extension 300 households on average are electrified at a cost of E7 million.

[3] Mapping data to identify suitable sites, minigrid framework, pilot project information, comparative costing and cost trends, regional project data and benchmarks.

[4] Based on a World Bank assessment (https://climateknowledgeportal.worldbank.org/country/swaziland/vulnerability Eswatini is highly vulnerable to climate risks.

[5] Outcome harvesting is an open-ended Monitoring and Evaluation (M&E) process that doesn't presuppose the interviewer has knowledge of what should be monitored or of the relative importance of various outcomes to participants. It can be used in combination with other forms of project (M&E) as well.

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.

Executing Agency: The Executing Agency for this project is the **Ministry of Natural Resources and Energy** (MNRE) within the Government of the Kingdom of Eswatini.

The Executing Agency is the entity to which the UNDP Administrator has entrusted the implementation of UNDP assistance specified in this signed project document along with the assumption of full responsibility and accountability for the effective use of UNDP resources and the delivery of outputs, as set forth in this document.

The Executing Agency is responsible for executing this project. Specific tasks include:
•Project planning, coordination, management, monitoring, evaluation and reporting. This includes providing all required information and data necessary for timely, comprehensive and evidence-based project reporting, including results and financial data, as necessary. The Executing Agency will strive to ensure project-level M&E is undertaken by national institutes and is aligned with national systems so that the data used and generated by the project supports national systems.

? Risk management as outlined in this Project Document;

? Procurement of goods and services, including human resources;

? Financial management, including overseeing financial expenditures against project budgets;

? Approving and signing the multiyear workplan;

? Approving and signing the combined delivery report at the end of the year; and,

? Signing the financial report or the funding authorization and certificate of expenditures.

A Project Management Unit (PMU) will be established within ESERA to lead the implementation of the AMP on behalf of the Executing Agency. The PMU will coordinate delivery across all component of the project. The PMU should consist of a Project Manager and a Project Assistant, as appropriate. The scope of duties for these roles are available in Annex 8 to the Project Document.

Responsible Parties: The Executing Agency may enter into a written agreement with other organizations, known as responsible parties, to provide goods and/or services to the project, carry out project activities and/or produce outputs using the project budget. Responsible parties are directly accountable to the Executing Agency in accordance with the terms of their agreement or contract with the Executing Agency. Any organization that is legally constituted and duly registered may become a responsible party including government agencies, NGOs, private firms, and academia.

Responsible parties have been identified to support the delivery of aspects of the project on behalf of the MNRE. Contracts will be placed with the responsible parties for the delivery of:
•Energy Regulatory Authority of Eswatini (ESERA) ? Overall delivery and hosting of the PMU on behalf of the MNRE.
•United Nations Capital Development Fund (UNCDF) ? Component 1, Intervention 1: Minigrid potential map.
•Eswatini Electricity Company (with support from the MCIT MSME Unit) ? Component 2, Intervention 1: Sigcineni productive use pilot project.

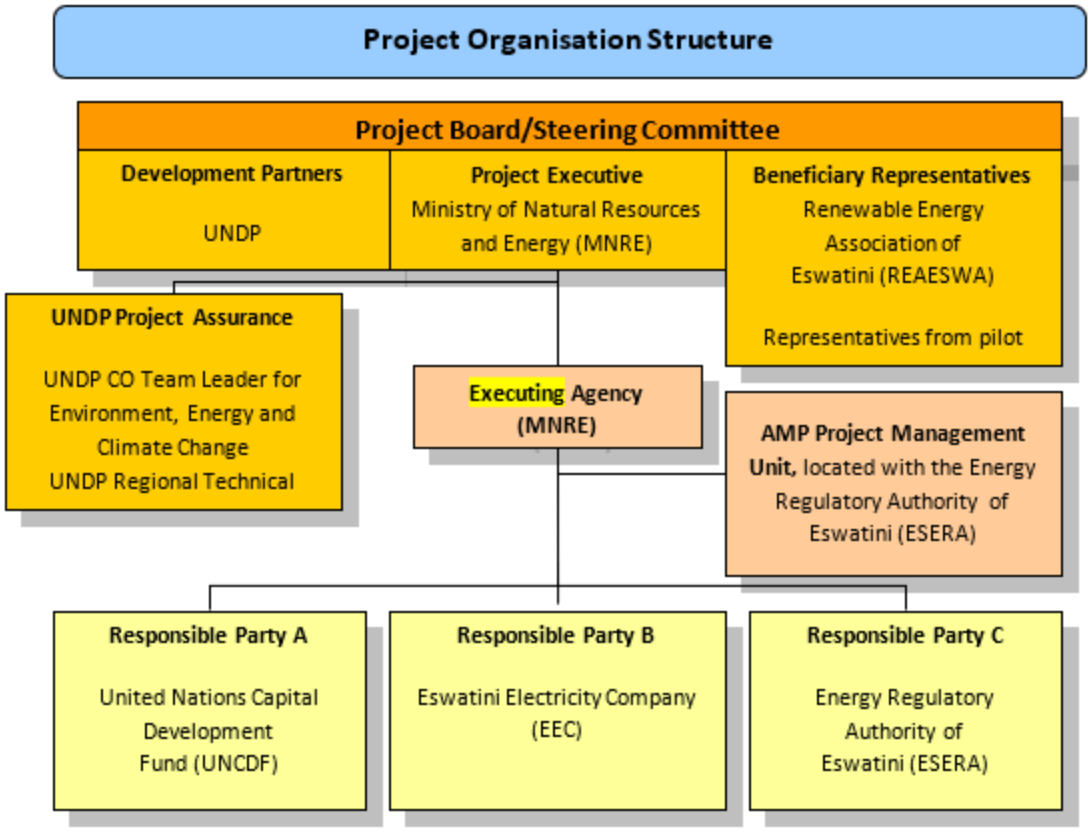
The legal instruments (contracts/agreements) to engage responsible parties are included in Annex 14 to this Project Document. Responsible parties should not serve on the Project Board to avoid conflict of interest.

Project stakeholders and target groups:
All the people of Eswatini stand to benefit from accelerated investments in clean energy. All taxpayers and electricity users stand to benefit from more cost-effective ways to deliver clean energy to end users. More specifically, rural communities currently without access to electricity will benefit from solutions that will enable affordable, clean energy to be delivered to their communities. Very directly, the specific communities who will be the recipients of the pilot projects will benefit from access to clean energy and the multiple associated socio-economic benefits including opportunities for income generation. Both communities will be engaged in the design of the pilot initiatives and the selection of productive uses. Community representatives will be elected by the communities for participation on the Project Board. It is anticipated that active engagement of direct beneficiaries at pilot level will inform future developments in other communities.

The potential RE minigrid industry will also benefit from the investment in capacity building and the piloting of innovative business models that can guide future development and operation. With no active minigrid industry, REISWA, the Renewable Energy Industry Association in the country will be engaged as industry representative and Project Board member.

UNDP: UNDP is accountable to the GEF for the implementation of this project. This includes oversight of project execution to ensure that the project is being carried out in accordance with agreed standards and provisions. UNDP is responsible for delivering GEF project cycle management services comprising project approval and start-up, project supervision and oversight, and project completion and evaluation. UNDP is also responsible for the Project Assurance role of the Project Board/Steering Committee.

Project organisation structure:



The Project Board (also called Project Steering Committee) is responsible for taking corrective action as needed to ensure the project achieves the desired results. In order to ensure UNDP?s ultimate accountability, Project Board decisions should be made in accordance with standards that shall ensure management for development results, best value money, fairness, integrity, transparency and effective international competition.

In case consensus cannot be reached within the Board, the UNDP Resident Representative (or their designate) will mediate to find consensus and, if this cannot be found, will take the final decision to ensure project implementation is not unduly delayed.

Specific responsibilities of the Project Board include:

? Provide overall guidance and direction to the project, ensuring it remains within any specified constraints;

? Address project issues as raised by the project manager;

? Provide guidance on new project risks, and agree on possible mitigation and management actions to address specific risks;

? Agree on project manager?s tolerances as required, within the parameters set by UNDP-GEF, and provide direction and advice for exceptional situations when the project manager?s tolerances are exceeded;

? Advise on major and minor amendments to the project within the parameters set by UNDP-GEF;

? Ensure coordination between various donor and government-funded projects and programmes;
? Ensure coordination with various government agencies and their participation in project activities;
? Track and monitor co-financing for this project;
? Review the project progress, assess performance, and appraise the Annual Work Plan for the following year;
? Appraise the annual project implementation report, including the quality assessment rating report;
? Ensure commitment of human resources to support project implementation, arbitrating any issues within the project;
? Review combined delivery reports prior to certification by the Executing Agency;

? Provide direction and recommendations to ensure that the agreed deliverables are produced satisfactorily according to plans;

? Address project-level grievances;

? Approve the project Inception Report, Mid-term Review and Terminal Evaluation reports and corresponding management responses;

•Review the final project report package during an end-of-project review meeting to discuss lesson learned and opportunities for scaling up.
•Ensure highest levels of transparency and take all measures to avoid any real or perceived conflicts of interest.
? Designate the representative of the project on the AMP Regional Project?s Steering Committee/Project Board

The composition of the Project Board must include the following roles:

a. Project Executive: Is an individual who represents ownership of the project and chairs the Project Board. The Executive is normally the national counterpart for nationally implemented projects. The Project Executive is: Ministry of Natural Resources and Energy, Director of Energy, Ms. Thabile Nkosi.

b. Beneficiary Representative(s): Individuals or groups representing the interests of those who will ultimately benefit from the project. Their primary function within the board is to ensure the realization of project results from the perspective of project beneficiaries. Often civil society representative(s) can fulfil this role. The Beneficiary representative (s) are: Nominated representative from the Renewable Energy Industry Association (REISWA) and elected representatives from the two pilot project recipient communities.

c. Development Partner(s): Individuals or groups representing the interests of the parties concerned that provide funding and/or technical expertise to the project. The Development Partner is: UNDP Resident Representative, Ms. Rose Ssebatindira.

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d. Project Assurance: UNDP performs the quality assurance and supports the Project Board and Project Management Unit by carrying out objective and independent project oversight and monitoring functions. This role ensures appropriate project management milestones are managed and completed, and conflict of interest issues are monitored and addressed. The Project Board cannot delegate any of its quality assurance responsibilities to the Project Manager. UNDP provides a three ? tier oversight services involving the UNDP Country Offices and UNDP at regional and headquarters levels. Project assurance is totally independent of project execution.

Representation on the AMP Regional Project?s Steering Committee / Project Board: A representative of the project will sit on the project board/steering committee of the AMP regional project in a role as ?beneficiary representative.? It is expected that all AMP Regional Project board meetings will be held virtually (i.e. not in-person) and that beneficiary representatives will participate in board meetings via video-conference. The representative of the project on the AMP regional board will be **from the Executing Agency or ESERA as host of the AMP Project Management Unit**[1]. It is expected that the AMP regional project board will meet a maximum of twice per year.

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[1] This role will be additional to any role in their respective national project steering committee. It is recommended this role will be played by either the representative of the IP on the Eswatini project board or the project manager/project coordinator of the Eswatini project.

7. Consistency with National Priorities

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

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

National Action Plan for Adaptation (NAPA) under LDCF/UNFCCC

- National Action Program (NAP) under UNCCD

- ASGM NAP (Artisanal and Small-scale Gold Mining) under Mercury

- Minamata Initial Assessment (MIA) under Minamata Convention

- National Biodiversity Strategies and Action Plan (NBSAP) under UNCBD

- National Communications (NC) under UNFCCC

- Technology Needs Assessment (TNA) under UNFCCC

- National Capacity Self-Assessment (NCSA) under UNCBD, UNFCCC, UNCCD

- National Implementation Plan (NIP) under POPs

- Poverty Reduction Strategy Paper (PRSP)

- National Portfolio Formulation Exercise (NPFE) under GEFSEC

- Biennial Update Report (BUR) under UNFCCC

- Others

The project corresponds with Eswatini?s third National Communication to the United Nations Framework Convention on Climate Change, dated April 2016 and is aligned with the country commitments to the Sustainable Development Goals, Intended Nationally Determined Contributions and priorities agreed under the 2021 ? 2025 United Nations Sustainable Development Cooperation Framework for Eswatini, specifically Outcome 1 and 4 as well as the Country Programme Document for Eswatini (2021 ? 2025):

? **Outcome 1: Promoting Sustainable and Inclusive Economic Growth.** By 2025, women, men and youth, including marginalized persons, contribute to and benefit from economic progress, through greater access to decent employment, equitable social economic opportunities, sustainable enterprise opportunities as well as resilient, financially sustainable social protection systems.

? **Outcome 4: Strengthening Natural Resource Management, Climate Resilience and Environmental Sustainability.** By 2025, Eswatini is on an inclusive low-carbon development pathway that is resilient to climate change and in which natural resources are managed sustainably, and community adaptation to climate change is enhanced, for improved livelihoods, health and food security, especially for vulnerable and marginalized communities

? **CPD identified national priority or goal and cooperation framework outcome involving UNDP:** Echoing the UNSDCF with the goal to have: Economic recovery underpinned by inclusive and sustainable growth. Outcome 1: By 2025, women, men and youth, including marginalized persons, contribute to and benefit from economic progress, through access to decent employment, equitable social economic opportunities, sustainable enterprise opportunities as well as resilient, financially sustainable social protection systems.

Within the policy framework, Renewable Energy (RE) mini-grids have been noted as a potential part of the solution to address both the last mile electrification challenge and the growing electricity demand, while also contributing to the renewable energy targets and climate change commitments for the country.

The context for and expected contribution from renewable energy mini-grids is reflected in several key policy and planning documents:

Policy / planning document	Relevance
Electricity Act, 2007	The Electricity Act makes a provision for the inclusion of mini-grids in the rural electrification programme, signaling the anticipated role that mini-grids can play in providing access to clean energy in remote areas. It also makes provision for the Minister responsible for energy affairs to declare an exemption from the obligation to hold a license. In terms of this Act, a Rural Electrification Access Fund is being developed and has been capitalized since April 2017 through a levy on electricity tariffs. It is understood to be earmarked to support equitable regional access to electricity to maximize economic, social and environmental benefits and specifically considers renewable energy and mini-grids as likely beneficiaries of the fund. Regulations are being developed to guide the administration of this ringfenced fund and are far advanced.
National Gender Policy, 2010	The National Gender Policy outlines strategies to ensure that women and girls have equal opportunities and access to, and control over productive resources including land and credit. This includes promoting self-employment and building women?s capacity in small and medium enterprises. Access to productive resources, agency-based empowerment, and MSME support are critical to ensuring women can benefit from productive use opportunities stemming from MG development at the same rates as men.
Nationally Determined Contribution (NDC), 2015	For the electricity sector, Eswatini committed to doubling the share of renewables in the energy mix by 2030, relative to 2010 levels. The NDC, highlights the significant role played by access to clean energy in improving social equity and economic development of the livelihoods of the people of Eswatini. The mitigation contribution under the energy sector entails the implementation of small scale, decentralized RE technologies in rural areas in order to contain the unsustainable use of wood fuel. This corresponds to the use of RE mini-grids for rural electrification purposes.
Kingdom of Eswatini Energy Masterplan, 2034.	The masterplan anticipates that renewable energy sources will play an important role in providing for the country?s electricity needs. It is specifically noted as a source of reliable, affordable and environmentally sound energy that can enhance energy access - including through decentralized solutions. It also sets a target of 100% access to clean energy at household level by 2030.
Eswatini Independent Power Producer Policy (EIPPP)[1], 2016	The EIPPP points to the expectation for mini-grid projects utilizing renewable energy resources to serve areas least likely to benefit from the national grid access in the short to medium term. By inclusion alongside IPPs, it also suggests an expectation for private sector participation in mini-grids systems.

Policy / planning document	Relevance
National Energy Policy (NEP), 2018	The 2018 update of the 2003 NEP sets out eleven broad policy objectives for the energy sector. Some of the most relevant objectives (concerning off-grid clean energy) are to: ? Ensure the efficient and cost-effective electricity supply integrating pricing for economic efficiency and financial sector viability. ? Support the development of renewable energy resources for a target of 50% of the electricity generation mix. ? To strive to provide all households with access to modern energy.
National Energy Policy Implementation Strategy (NEPIS), 2018	The NEPIS was developed in parallel with the updated NEP, to support the implementation of adopted policy positions. The NEPIS? goal is to ?meet the energy needs of the country in a sustainable manner that contributes to economic growth and wellbeing of the population?, with the following stated objectives: ? Ensuring universal access to affordable energy ? Enhancing employment creation ? Ensuring security of energy supply ? Stimulating economic growth and development ? Ensuring environmental health and sustainability In relation to rural electrification, the NEPIS seeks to reduce household reliance on wood - one of the main contributors to deforestation. Energy access is also identified as the main driver of economic activity and thus contribute to job creation through productive uses of energy.
Programme Framework for Affordable Renewable Energy in Swaziland (PARES), 2018.	In 2018, the Ministry of Natural Resources and Energy (MNRE) in conjunction with UNDP produced a framework to achieve affordable clean energy for all known as the Programme Framework for Affordable Renewable Energy in Swaziland (PARES). Under the framework, UNDP seeks to facilitate investment in renewable energy and build generation capacity through public-private partnerships. The framework aims to assist Eswatini in attracting investment into both on-grid and off-grid renewable development projects.

[1] Previously Swaziland Independent Power Producer Policy (SIPPP).

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.

Knowledge management is core to the program. Component 3 is focused on data, knowledge management and monitoring and evaluation. A key aspect of the regional project is to collate and share knowledge across participant countries as well as support the development of the clean energy mini-grid industry more broadly. Accordingly, knowledge management is very deliberately included into the project design with four outputs defined in support of knowledge management and dissemination.

To achieve this, an early activity is the development of a data strategy to guide data collection throughout the project. This is supported by the requirement for a project website to serve as a complete, transparent knowledge platform. Data and knowledge resources that will be shared at both national and regional level are described in the following Outputs:

- 3.1: 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.
- 3.2: A Digital Strategy is developed and implemented, including linkages to and following guidance from the regional project.
- 3.3: Minigrids digital platform implemented to run tenders and manage data from pilots, and to support minigrids scale-up and cost-reduction.
- 3.4: Active interface with regional project established, including, but not limited to, via (i) participating in Communities of Practice and (ii) capturing and sharing lessons learnt.
- 3.5: Knowledge network established to promote minigrid development / rural energy access.

Linkage or feedback loops within the national project structure as well as the regional project were also incorporated in the project design and noted in each of the above outputs. Access to and support available from the regional will further facilitate knowledge management and sharing. Structures have been put in place to ensure consistent data collection, monitoring and reporting across all child projects.

Similarly, data collected for the DREI study (Output 1.2) will be collated at regional level, combining the insights from all AMP partner countries. Linkage or feedback loops within the national project structure as well as the regional project were also incorporated in the project design. Access to and support available from the regional project will further facilitate knowledge management and sharing. Structures have been put in place to ensure consistent data collection, monitoring and reporting across all child projects.

The combined budget to deliver these 5 outputs is $130,696. The foundations of the QAMF, digital strategy and platform will be developed during the first year of implementation. Data collection, analysis and knowledge sharing will continue throughout the implementation period with timing of knowledge sharing events, workshops and reports on metrics detailed in the Multi-Year Workplan and Monitoring Plan annexed to the Project Document.

9. Monitoring and Evaluation

Describe the budgeted M and E plan

The project results, corresponding indicators and mid-term and end-of-project targets in the project results framework will be monitored annually and evaluated periodically during project implementation. If baseline data for some of the results indicators is not yet available, it will be collected during the first year of project implementation. The Monitoring Plan included in Annex details the roles, responsibilities, and frequency of monitoring project results.

Project-level monitoring and evaluation will be undertaken in compliance with UNDP requirements as outlined in the UNDP POPP and UNDP Evaluation Policy. The UNDP Country Office is responsible for ensuring full compliance with all UNDP project monitoring, quality assurance, risk management, and evaluation requirements.

Additional mandatory GEF-specific M&E requirements will be undertaken in accordance with the GEF Monitoring Policy and the GEF Evaluation Policy and other relevant GEF policies[1]. The costed M&E plan included below, and the Monitoring plan in Annex, will guide the GEF-specific M&E activities to be undertaken by this project.

In addition to these mandatory UNDP and GEF M&E requirements, other M&E activities deemed necessary to support project-level adaptive management will be agreed during the Project Inception Workshop and will be detailed in the Inception Report.

Finally, the project will have a number of M&E linkages to the AMP regional project. This is set out in a Box, at the end of this section.

Additional GEF monitoring and reporting requirements:

Inception Workshop and Report: A project inception workshop will be held within 60 days of project CEO endorsement, with the aim to:

a. Familiarize key stakeholders with the detailed project strategy and discuss any changes that may have taken place in the overall context since the project idea was initially conceptualized that may influence its strategy and implementation.

b. Discuss the roles and responsibilities of the project team, including reporting lines, stakeholder engagement strategies and conflict resolution mechanisms.

c. Review the results framework and monitoring plan.

d. Discuss reporting, monitoring and evaluation roles and responsibilities and finalize the M&E budget; identify national/regional institutes to be involved in project-level M&E; discuss the role of the GEF OFP and other stakeholders in project-level M&E.

e. Update and review responsibilities for monitoring project strategies, including the risk log; SESP report, Social and Environmental Management Framework and other safeguard requirements; project grievance mechanisms; gender strategy; knowledge management strategy, and other relevant management strategies.

f. Review financial reporting procedures and budget monitoring and other mandatory requirements and agree on the arrangements for the annual audit.

g. Plan and schedule Project Board meetings and finalize the first-year annual work plan.

h. Formally launch the Project.

GEF Project Implementation Report (PIR):
The annual GEF PIR covering the reporting period July (previous year) to June (current year) will be completed for each year of project implementation. Any environmental and social risks and related management plans will be monitored regularly, and progress will be reported in the PIR. The PIR submitted to the GEF will be shared with the Project Board. The quality rating of the previous year?s PIR will be used to inform the preparation of the subsequent PIR.

GEF Core Indicators:
The GEF Core indicators included as Annex will be used to monitor global environmental benefits and will be updated for reporting to the GEF prior to the TE. Note that the project team is responsible for updating the indicator status. The updated monitoring data should be shared with TE consultants prior to required evaluation missions, so these can be used for subsequent groundtruthing. The methodologies to be used in data collection have been defined by the GEF and are available on the GEF website.

Terminal Evaluation (TE):
An independent terminal evaluation (TE) will take place upon completion of all major project outputs and activities. The terms of reference, the evaluation process and the final TE report will follow the standard templates and guidance for GEF-financed projects available on the UNDP Evaluation Resource Center.

The evaluation will be ?independent, impartial and rigorous?. The evaluators that will be hired to undertake the assignment will be independent from organizations that were involved in designing, executing or advising on the project to be evaluated. Equally, the evaluators should not be in a position where there may be the possibility of future contracts regarding the project being evaluated.

The GEF Operational Focal Point and other stakeholders will be actively involved and consulted during the terminal evaluation process. Additional quality assurance support is available from the BPPS/GEF Directorate.

The final TE report and TE TOR will be publicly available in English and posted on the UNDP ERC by 1 June 2025. A management response to the TE recommendations will be posted to the ERC within six weeks of the TE report?s completion.

Final Report:
The project?s terminal GEF PIR along with the terminal evaluation (TE) report and corresponding management response will serve as the final project report package. The final project report package shall be discussed with the Project Board during an end-of-project review meeting to discuss lesson learned and opportunities for scaling up.

Agreement on intellectual property rights and use of logo on the project?s deliverables and disclosure of information**:** To accord proper acknowledgement to the GEF for providing grant funding, the GEF logo will appear together with the UNDP logo on all promotional materials, other written materials like publications developed by the project, and project hardware. Any citation on publications regarding projects funded by the GEF will also accord proper acknowledgement to the GEF. Information will be disclosed in accordance with relevant policies notably the UNDP Disclosure Policy[2] and the GEF policy on public involvement[3].

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Monitoring and Evaluation Plan and Budget: This M&E plan and budget provides a breakdown of costs for M&E activities to be led by the Project Management Unit during project implementation. These costs are included in Component 3 of the Results Framework and TBWP. For ease of reporting M&E costs, please include all costs reported in the M&E plan under the one technical component. The oversight and participation of the UNDP Country Office/Regional technical advisors/HQ Units are not included as these are covered by the GEF Fee.		
GEF M&E requirements	**Indicative costs (US$)[4]**	**Time frame**
Inception Workshop (assumed blended format, respecting social distancing guidelines)	3,000	Within 60 days of CEO endorsement of this project.
Inception Report	None[5]	Within 90 days of CEO endorsement of this project.
M&E of GEF core indicators and project results framework	12,000 (3,000 per year)[6]	Annually and at mid-point and closure.
GEF Project Implementation Report (PIR)	None[7]	Annually typically between June-August, starting after first year of implementation.
Monitoring of environmental and social risks, and corresponding management plans as relevant	None[8]	On-going.
Addressing environmental and social grievances	None[9]	

Monitoring and Evaluation Plan and Budget: This M&E plan and budget provides a breakdown of costs for M&E activities to be led by the Project Management Unit during project implementation. These costs are included in Component 3 of the Results Framework and TBWP. For ease of reporting M&E costs, please include all costs reported in the M&E plan under the one technical component. The oversight and participation of the UNDP Country Office/Regional technical advisors/HQ Units are not included as these are covered by the GEF Fee.		
GEF M&E requirements	**Indicative costs (US$)[4]**	**Time frame**
Monitoring of Gender Action Plan	None[10]	On-going.
Supervision missions	None	Annually.
Independent Mid-term Review (MTR)	N.A.	N.A.
Independent Terminal Evaluation (TE)	28,000	1 June 2025
TOTAL indicative COST	**43,000[11]**	Included under component 3, outputs 3.1 and 3.6 as relevant.

Box: Linkages to the AMP Regional Project - M&E

The project will share M&E information with the AMP Regional Project as follows:

? The project will provide on an annual basis (and to the extent feasible if requested on an ad-hoc basis) the following M&E information to the AMP regional project staff: (a) Standard reporting on all indicators in the results framework for aggregation and reporting to GEF (by the regional project) on the impacts of all participating national projects for the program as a whole; and (b) Reporting on any and all additional Key Performance Indicators (KPIs) adopted by the project under the common M&E framework.

The project will receive support and guidance from the AMP Regional Project for conducting M&E activities as follows:

? **Inception workshop**. The AMP Regional Project PMU will:

a. Provide support to the project PMU to develop content and materials to facilitate project planning activities to be completed during and after the Inception Workshop. This includes but is not limited to support for the PMU to prepare and/or update ?key project planning instruments? such as the Total Budget and Work Plan, multi-year work plan, Annual Work Plan (AWP), Monitoring Plan, and Procurement Plan, among others.

b. Participate either remotely or in-person in the Inception Workshop.

c. Review and provide inputs to the Inception Workshop Report prior to submitting to UNDP.

? **Ongoing project monitoring**. The AMP Regional Project PMU will:

a. Develop a ?common monitoring and evaluation (M&E) framework? against which GHG emission reductions and broader SDG impacts and program objectives can be measured, and work closely with national child projects to ensure operationalization and harmonization.

b. Provide support to the project PMU for updating ?key project planning instruments? at least on an annual basis as required to comply with UNDP project monitoring, quality assurance, and risk management requirements, and ensure adequate project planning and adaptive management. This may entail developing common templates for ?key project planning instruments?.

c. Review and provide feedback on reports submitted by the project PMU seeking to continuously improve the quality and ease of reporting by national projects.

d. Aggregate M&E data from all national projects, including Results Framework and all additional Key Performance Indicators (KPIs) adopted by the project under the common M&E framework, and report back to GEF at the program level.

? **Evaluations (MTR and TE)**. The AMP Regional Project PMU will:

a. Make available to national projects standardized terms of reference for MTR and TE as well as a roster of vetted evaluation consultants.

Review and provide feedback on terms of reference and draft evaluation reports shared by the project PMU

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[1] See https://www.thegef.org/gef/policies_guidelines

[2] See http://www.undp.org/content/undp/en/home/operations/transparency/information_disclosurepolicy/

[3] See https://www.thegef.org/gef/policies_guidelines

[4] Not including project team staff time

[5] To be prepared by PMU, with no additional costs

[6] Because the aim of the regional program is knowledge sharing between the participant countries, a critical focus is on data collection, monitoring and reporting. The development of a data strategy, data collection, analysis, monitoring and reporting are integral to the overall monitoring framework and therefore already covered under the budget for Output 3.4. Within the overall QAMF, this budget allocation is specific to monitoring of GEF core indicators (emissions and beneficiaries) and results framework indicators.

[7] Activities and costs included in the PMU, Country Office and Regional Technical Advisor functions.

[8] The ESMF has not identified specific indicators at this time, however socio-economic and environmental indicators have been incorporated under the data collection and overall monitoring framework and integrated under Output 3.4. A separate budget has therefore not been allocated.

[9] The SEP makes provision for a grievance mechanism

[10] Gender specific indicators have been incorporated into the indicators, data collection and overall monitoring framework and are therefore already covered under the budget for Output 3.4. Therefore, no additional budget allocation has been made.

[11] Within the 5% allowance for M&E when GEF project grant for project is up to USD 5 million

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)?

All the people of Eswatini stand to benefit from accelerated investments in clean energy. All taxpayers and electricity users stand to benefit from more cost-effective ways to deliver clean energy to end users. More specifically, rural communities currently without access to electricity will benefit from solutions that will enable affordable, clean energy to be delivered to their communities as well as the multiple, broader socio-economic benefits that will accrue, including a healthier environment, opportunities for income generating activities and improved management of natural resources.

Very directly, the specific communities in Eswatini who will be the recipients of the pilot projects will benefit from access to clean energy and the multiple associated socio-economic benefits to their communities. Both pilot communities will be engaged in the design of the pilot initiatives and the selection of productive uses.

Across all outputs, at least 459 beneficiaries are expected to benefit directly as recipients of electricity access, recipients of small businesses support and/or subsidized electrical appliances, recipients of training, as participants in the regional Community of Practice, participants in National Dialogue and participants in the national knowledge network.

Guidance from the Gender Analysis and Action Plan will help ensure that gender equity and empowerment remain a key part of the project implementation, while disaggregated indicators as well as monitoring and reporting will enable an understanding of gender specific impacts that can inform improved future planning and decision-making. Particular attention will be given to strengthening the role of women as beneficiaries,

decision-makers, participants, management and ownership of mini-grid systems or energised end-uses as detailed in the gender action plan.

Socio-economic impacts will also be tracked more broadly for both pilot projects to allow refinements and inform future planning and decision-making. By linking this information back to the appropriate forums and specifically to inform the development of the Mini-grid Roadmap and Vision, benefits can be replicated and enhanced in future mini-grid developments.

The overall program is expected to mitigate significant amounts of CO? emissions and will be accompanied by co-benefits. At the national level, direct and consequential (indirect) emission reductions are expected to occur. The lifetime global environmental benefits that will accrue from the adoption of clean energy minigrid technologies is estimated at 2,444 tCO_2e. Indirect emission reductions amounting to 54,000 tCO_2e are expected due to investments in minigrids completed during the 10-year influence period following project completion, predominantly through the replication of the sustainable technology value chain. An additional 6000 tCO_2e are allocated to the AMP regional child project out of an overall 54,000 tCO_2e for this country.

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
PIMS 6432 ESWATINI SESP revised Sep 30 2021	**CEO Endorsement ESS**	
PIMS 6432 ANNEX_06-SESP - ESWATINI - 21May2021	**CEO Endorsement ESS**	

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

This project will contribute to the following Sustainable Development Goal(s): *SDG 7. Ensure access to affordable, reliable, sustainable and modern energy for all and SDG 13. Take urgent action to combat climate change and its impacts. It will indirectly also contribute to SDG 3. Ensure healthy lives and promote well-being for all at all ages. SDG 5. Achieve gender equality and empower all women and girls. SDG 8. Promote sustained, inclusive and sustainable economic growth, full productive employment and decent work for all*				
This project will contribute to the following country outcome (UNSDCF): *Outcome 1: Promoting Sustainable and Inclusive Economic Growth. By 2025, women, men and youth, including marginalized persons, contribute to and benefit from economic progress, through greater access to decent employment, equitable social economic opportunities, sustainable enterprise opportunities as well as resilient, financially sustainable social protection systems. Outcome 4: Strengthening Natural Resource Management, Climate Resilience and Environmental Sustainability. By 2025, Eswatini is on an inclusive low-carbon development pathway that is resilient to climate change and in which natural resources are managed sustainably, and community adaptation to climate change is enhanced, for improved livelihoods, health and food security, especially for vulnerable and marginalized communities.*				
	Objective and Outcome Indicators **(no more than a total of 20 indicators)**	**Baseline**	**Mid-term Target**	**End of Project Target**
Project Objective: Supporting access to clean energy by increasing the financial viability, and promoting scaled-up	***Mandatory*** *GEF Core Indicators*: *Indicator 1:* **Greenhouse gas emissions mitigated (metric tons of carbon dioxide equivalent)** *(Units of measure: metric tons of CO_2e)*	Zero, since the project has not yet started	N/A	2,444 (direct) 54,000 (indirect)

commercial investment, in renewable energy minigrids in Eswatini with a focus on cost-reduction levers and innovative business models.	***Mandatory*** *GEF Core Indicators:* *Indicator 2:* **Number of direct beneficiaries benefitting from energy access via minigrids, disaggregated by gender and by customer segment (residential, social, commercial/productive use), as co-benefit of GEF investment** *Units of measure: number of people; number of connections disaggregated by customer segment*	Zero, since the project has not yet started.	132 additional persons of whom at least 67 women	459 additional persons of whom 234 women ----- 400 people (residential) 8 people (social) 51 people (commercial/PUE) ***459 people (total)*** ----- 80 connections (residential) 2 connections (social) 17 connections (commercial/PUE) 99 connections (total)
	Indicator 3: Increase in installed solar PV capacity (MW) and battery storage (MWh) *(Units of measure: Megawatt (MW) and Megawatt hour (MWh))*	Zero, since the project has not yet started	None.	Solar PV: 0.02 MW new capacity (dependent on available budget and community needs)
Project component 1	**Policy and Regulation**			
Project Outcome 1 Stakeholder ownership in a national minigrid delivery model is advanced, and appropriate policies and regulations are adopted to facilitate investment in renewable	*Indicator 4:* Suitable locations for minigrid development identified and published for the country *(Units of measure: binary (1/0))*	Sites suitable to minigrid development have not been identified. World Bank process for least cost electrification planning process initiated that will develop the base map.	First iteration of minigrid map overlays developed to help identify suitable minigrid sites.	Updated map of suitable minigrid sites published for the country.

energy minigrids.	*Indicator 5:* Number of policy derisking instruments for minigrid investments identified and endorsed by the national government *(Units of measure: Absolute number of policy derisking instruments)*	0 policy derisking instruments for renewable energy minigrids investment (tariffs, customs, standards, financial incentives, etc.) identified and endorsed by the national government. Minigrid Regulatory Framework under development by ESERA (to be confirmed as baseline at inception).	1 new policy derisking instrument for renewable energy minigrids investment (tariffs, customs, standards, financial incentives, etc.) identified and endorsed by the national government	2 new policy derisking instruments for renewable energy minigrids investment (tariffs, customs, standards, financial incentives, etc.) identified and endorsed by the national government
	Indicator 6: A minigrid delivery model and roadmap to enable minigrid development is endorsed/adopted through a consultative process involving key stakeholders (e.g. relevant ministries, local authorities, rural populations, private sector, media, etc.) *(Units of measure: binary (1/0))*	Technical Steering Committee being created as part of PPG phase	National Dialogue platform established and active. First DREI analysis concluded.	At least one preferred minigrid delivery model is identified and endorsed through the work of the multi-stakeholder platform and dialogue. Minigrid Roadmap adopted, informed by National Dialogue and DREI analysis

Outputs to achieve Outcome 1	Output 1.1: Geospatial, techno-economic modelling of least-cost off-grid renewable electricity technologies (minigrids, grid expansion, solar home systems) Output 1.2: An inclusive national dialogue to identify minigrid delivery models, a vision and roadmap is facilitated, clarifying priority interventions for an integrated approach to off-grid electrification. Output 1.3: Capacity building provided to public officials (regulator, ministries) to identify and incorporate cost-reduction levers and innovative business models. Output 1.4: Minigrid DREI techno-economic analyses carried out to propose most cost-effective basket of policy and financial derisking instruments and contribute to AMP Flagship Report on Cost Reduction			
Project component 2	**Business Model Innovation with Private Sector Engagement**			
Outcome 2 Innovative business models based on cost reduction operationalized, with strengthened private sector participation in renewable energy minigrid development.	*Indicator 7:* Number of minigrid pilots implemented that demonstrate a delivery model, cost-reduction measure(s) and/or productive use of electricity *(Units of measure: Absolute number of minigrid sites where pilots are implemented with project support)*	First 35 kWp minigrid system developed by public utility primarily for electrification of rural households.	One pilot demonstrating improved feasibility with PUE overlay	Two operational minigrids demonstrating a delivery model, cost-reduction measure(s) and/or productive use of electricity
	Indicator 8: Capacity of minigrid developers and/or operators is enhanced to implement innovative business models and incorporate cost-reduction levers in minigrid projects *(Units of measure: binary (1/0))*	Four potential developers identified, and preliminary assessment done of minigrid experience. No capacity building done.	Information disseminated and awareness raised (2 out of a possible scale of 5)	Institutional/human capacity strengthened for potential developers (4 out of a possible scale of 5)

Outputs to achieve Outcome 2	Output 2.1: Expansion of public utility minigrid pilot to incorporate Productive Use of Energy (PUE), innovative appliances and small business development, to demonstrate opportunities for improved feasibility of minigrid systems for rural households. Output 2.2: Greenfields pilot developed demonstrating productive uses use/innovative appliances and modular hardware/system design, leading to cost-reduction in minigrids. Output 2.3: Strengthen capacity of potential developers and operators to consider design parameters, innovative business models and cost-reduction levers, to improve project feasibility, with practical experience drawn from both pilot projects.			
Project component 3	**Digital, Knowledge Management and Monitoring and Evaluation**			
Outcome 3 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 9*. A project digital strategy for the project is prepared and implemented by the PMU to contribute to project implementation and local minigrid market development *(Units of measure: binary (1/0))*	Data strategy not currently in place.	The project digital strategy is developed and being implemented. (1)Baseline data from EEC minigrid pilot project available.	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) Complete dataset for all outputs and measured data from pilot projects
	Indicator 10. Number of minigrid pilots sharing data on minigrid performance with the regional project and other stakeholders following best practices and guidance provided by the AMP Regional Project. *(Units of measure: binary (1/0))*	No pilot data currently available.	The project?s ?digital & 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) Pilot 1 sharing data	100% of the planned minigrid pilots, as identified in the project?s Minigrid Pilot Plan, are collecting and sharing data with the AMP Regional Project using the project?s ?digital & data management platform?. (1)

	Indicator 11. Comprehensive minigrid knowledge resources including complete dataset from pilot projects established *(Units of measure: binary (1/0))*	No formal minigrid knowledge resource in place.	All data available at this time captured and processed into knowledge resources.	Comprehensive country-specific knowledge resource with case studies, communications and training material.
	Indicator 12. Measurement, Reporting and Verification (MRV) framework linked to and compliant with regional project requirements. *(Units of measure: binary (1/0))*	No MRV framework in place.	MRV framework designed to meet at least regional project requirements. Indicators monitored and captured to specification.	MRV framework complete, up to date and submitted to regional project.
Outputs to achieve Outcome 3	Output 3.1: 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. Output 3.2: A Project Digital Strategy is developed and implemented, including linkages to and following guidance from the regional project. Output 3.3: Minigrids digital platform implemented to run tenders and manage data from pilots, and to support minigrids scale-up and cost-reduction. Output 3.4: Active interface with regional project established, including, but not limited to, via (i) participating in Communities of Practice and (ii) capturing and sharing lessons learnt. Output 3.5: Knowledge network established to promote minigrid development / rural energy access. Output 3.6: M&E and Reporting, including (i) Conducting inception workshop and preparing report, (ii) Ongoing M&E, (iii) Mid Term Evaluation and (iv) Terminal Evaluation			

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).

Compilation of Comments submitted by Council Members of the GEF December 2019, Work Program. Regional project, GEF 7 Africa Mini-grids Program, UNDP (GEF Program Financing: $24,235,308) (GEF ID: 1043).

Table 2: Council Comments and Responses

Comment & Response	Reference
Council Comments (Germany):	
1. Comment: *"Germany requests that the risk and co-financing sections of the document are revised to provide more information about how the project implementers intend to mobilize the proposed finance and what alternatives will be pursued in the event of delays or changes to the indicative funds. With around 344 Mio. USD, provided by 51 financiers, a well-managed and guaranteed flow of co-financing will be crucial to the project?s success. However, at this stage, co-financing sources and amounts are still indicative, thereby giving no assurance that finances will be made available."* **Response**: Indeed, co-financing and partnerships with the private sector and capital providers will be critical to the program?s success. During the PPG phase, discussions with co-financiers have been deepened and formalized. Details on this have been captured on this in both the CEO endorsement requests and project document. Measures to ensure that co-financing materializes will be addressed as follows, at the regional project and national project level: Regional project measures: (i) The AMP regional project will, as part of its monitoring activities under Component 5, track overall co-financing for the program, including co-financing for the regional project as well as for national projects. As per the regional project?s Stakeholder Action Plan (Annex 8), the regional project will be in a position to identify new sources of co-financing as a mitigation action for any of the sources confirmed at CEO Endorsement stage that do not materialize during implementation. (ii) UNDP is part of the Minigrid Funders Group (MGF), which represents the main donors and development agencies active in minigrids, which will provide a mechanism to coordinate with other key funders in the minigrids sector. (iii) UNDP?s oversight team for the regional project, and the regional project?s PMU, will monitor the realization of co-financing on an annual basis in the GEF PIR, and in the mid-term and terminal evaluation. (iv) The regional project?s Board is tasked in its TOR with tracking and monitoring co-financing. - - Eswatini national project measures. The risk analysis for Eswatini AMP includes consideration of co-financing risk. To mitigate the risk the following measures have been put in place: (i) UNDP?s Country Office, and the national project?s PMU, will monitor the realization of co-financing on an annual basis in the GEF PIR, and in the mid-term and terminal evaluation. (ii) The national project?s Board is tasked in its TOR with tracking and monitoring co-financing. Further opportunities for potential sharing of costs and leveraging of planned or available resources have been identified and noted in project documentation that can be pursued during implementation once implementation details (e.g. site selection for greenfield project) have been firmed up.	Eswatini CEO endorsement request: - Table C Eswatini national project document: - Section IV. RESULTS AND PARTNERSHIPS, and - Section VIII. FINANCIAL PLANNING AND MANAGEMENT. Regional project document: Section IV. RESULTS AND PARTNERSHIPS: - Description of Component 5); - Key Risks (Table 9) Eswatini national project document: Section IV. RESULTS AND PARTNERSHIPS: - Key Risks, and Section VII. GOVERNANCE AND MANAGEMENT ARRANGEMENTS

Comment & Response	Reference
2. Comment: *"Germany requests **clear identification of relevant stakeholders for all countries and all program components**, including regional and national agencies, technical stakeholders (implementation phase), strategic partners and relevant companies for e.g. capacity building. The program includes 11 African countries and numerous stakeholders. For some countries, relevant ministries and relevant technical implementation partners have been appointed, for others not."* **Response**: All relevant stakeholders have been identified for Eswatini and included in the project document?s comprehensive Stakeholder Engagement Plan (Annex 9). Stakeholders identified as partners and potential partners are also highlighted in the project document, Section IV. RESULTS AND PARTNERSHIPS The Executing Agency (Implementing Partner) for Eswatini has been identified as the Ministry of Natural Resources and Energy (MoE).	Eswatini Project document: Annex 9 and Section IV. RESULTS AND PARTNERSHIPS Eswatini CEO endorsement/ approval request document: - (Part II, Section 6 - Institutional Arrangement and Coordination) And Eswatini Project document: - Section VII. GOVERNANCE AND MANAGEMENT ARRANGEMENTS

Comment & Response	Reference
3. Comment: *"Germany requests a **breakdown of component 2 activities**, including more details on the project approach under Component 2. A large part of the program?s allocated funding is for investments in this component (49% of total budget). However, the activities in this component are not sufficiently described. Given the importance to the project outcomes, Germany would also **recommend further describing how project activities contribute to the project?s overall theory of change."*** **Response**: Eswatini National project: Component 2 activities, which include GEF INV for minigrid pilots, for the AMP in Eswatini are comprehensively described in the project document, Section IV, RESULTS AND PARTNERSHIPS. The contribution of the respective components to the national project?s theory of change has been detailed in the project document Section III, strategy, in the paragraphs leading up to the TOC diagram. Regional project. At the program level, the contribution of minigrid investment pilots to the program?s overall TOC has been further explained in the Strategy Section of the AMP Regional project document as follows: *?Minigrid investment pilots? contribution to the Program?s TOC: National Projects include funds, under Component 2 (Business model innovation and private sector), for supporting minigrid investment pilots seeking to demonstrate innovative business models and cost-reduction opportunities. Minigrid pilots have a key role within AMP by contributing to demonstrate cost-reduction which can be leveraged to improve the financial viability of renewable energy minigrids. Minigrid pilots are aligned with one or more of the three key areas of opportunity mentioned above by demonstrating: (i) a particular delivery model or elements of a delivery model around which the government wishes to build capacity and engage with minigrid developers; (ii) productive uses of electricity and their potential to reduce costs and enable minigrid development at scale; and/or (iii) opportunities around digitalization and the use of data for minigrid cost reduction. Feedback loops to other national project activities (e.g. national dialogues, capacity building) and with the AMP Regional Project (e.g. Community of Practice) are intended to actively disseminate the learnings from the pilots to inform both the policy and regulatory environment as well technical capacity building.?*	Eswatini National project document: Section IV. RESULTS AND PARTNERSHIPS - Component 2 description Eswatini National project Document: Section III. STRATEGY Regional Project Document: Section III. STRATEGY

Comment & Response	Reference
4. Comment: *"Experiences with implementing mini-grids in Africa have proven that high financial costs are linked to high financial risks in local markets. The proposal considers the risk, but* ***Germany recommends that special attention should be given to financial risk reduction and risk-hedging approaches****. The risk section should be revised accordingly.* ***The lack of skilled technical staff is a further risk that requires greater consideration****.* *Germany recommends a greater focus on capacity building for skilled technicians."* **Response**: Effectively and efficiently addressing investment risks will be key to transforming local minigrid markets. AMP?s design - both at national and regional project levels - will use UNDP?s innovative Derisking Renewable Energy Investment (DREI) framework to identify, quantify and then target the underlying risks that are driving high financing, investment and operation costs. The DREI framework facilitates selection from a menu of possible policy and financial derisking instruments which can then reduce, transfer of compensate for these risks. Following the performance of a DREI techno-economic analyses in Eswatini in year 1, in Output 1.4, findings can then shape follow-on project and partner activities. Lessons learnt at national level in each country will be aggregated into regional knowledge products by the AMP Regional Project and disseminated widely. Other than the capacity building done on site for the pilots, capacity building for skilled technicians have not been specifically targeted under the AMP in Eswatini. A survey sent out to potential minigrid developers in the country did not consider technical skills a significant risk. In prioritizing the available resources and AMP contribution in the Eswatini context where the contribution by minigrids is uncertain, the focus of capacity building was broadened to strengthen capacity of potential developers and operators to consider design parameters, innovative business models and cost-reduction levers, to improve project feasibility, with practical experience drawn from both pilot projects (Output 2.3).	Eswatini national project document: Section IV. RESULTS AND PARTNERSHIPS ? Description of Component 1
Council Comments (Norway/Denmark):	
5. Comment: *"USD 1,303,576 is budgeted for Program Management Cost (i.e. ca. 5%) presumably for implementing the various components"* **Response**: Comment targeted at program level and addressed in the regional project response. Details of the Eswatini AMP co-financing, fees and Project Management Costs are included in the documents.	
6. Comment: *"USD 2,181,178 in addition is requested from the UNDP, i.e. ca. 8.3% - is this on top of the fee above? "* **Response**: Comment targeted at program level and addressed in the regional project response. Details of the Eswatini AMP co-financing, fees and Project Management Costs are included in the documents.	

Comment & Response	Reference
7. Comment: *"Estimated co-financing is USD 344,310,000 ? of this only about USD 95 mill is loans (from WB, GCF, AfDB and GIZ), or ca. 28%. This is to be expected as there are still not strong business models for mini-grids without significant grant financing. "* **Response**: Agreed. Minigrids still require grant financing and concessional lending which is why the co-financing sources identified for AMP include a mix of grants and loans with loans representing a smaller fraction of the total co-financing.	
8. Comment: *"Output 2.1 stipulates that ?Pilots developed, including on productive use/innovative appliances and modular hardware/system design, leading to cost- reduction in mini-grids? ? **are there not a lot of lessons that can be gained from existing mini-grid programs now**? "* **Response**: While the program builds on lessons learned from previous projects and programs, minigrid markets in many countries overall remain immature, and there is a strong need for continued piloting of minigrids. The emphasis for minigrid pilots (Output 2.1 and 2.2) will be on piloting and showing proof-of-concept business models. To provide a better recount of lessons learned the program builds off from, a section on lessons learned has been added to regional project document, section III Strategy.	Regional Project Document: Section III. STRATEGY

Comment & Response	Reference
9. Comment: *"Output 3.3 ?General market intelligence study on mini-grids prepared and disseminated amongst public officials and finance community? ?* ***how will this be different from existing market intelligence,*** *for example:* ? https://www.esmap.org/mini_grids_for_half_a_billion_people ? https://eepafrica.org/wpcontent/uploads/EEP_MiniGrids_Study_DigitalVersion.pdf ? https://www.reeep.org/mini-grid-development-africa *There is also at least one existing ?community of practice?:* ? http://ledsgp.org/community/africa-mini-grids-community-ofpractice/?loclang=en_gb *Similarly,* ***how will the knowledge tools (4.1) be different from/build on others****?"* **Response**: This comment is not applicable to Eswatini, as it does not have this output. Regional project: Knowledge tools Comment targeted at program level and addressed in the regional project response.	

Comment & Response	Reference
10. Comment: *"**How will the implementers ensure that markets are not undermined?** There arecurrently several mini-grids invested in by commercial actors (e.g. Norfund in Madagascar - https://www.norfund.no/newsarchive/lighting-up-madagascar) and the program should provide assurances that it will not undermine markets through **(overly) subsidized** new mini-grids (e.g. if a few villages are connected to a mini-grid which has been commercially invested in and pay a relatively high tariff, **it can lead to discontent** if another few nearby villages are connected to a new mini-grid that due to a higher level of grant financing pay a lower tariff)."* **Response**: Risk of overly subsidization of new minigrids. To avoid any over subsidization, the level of subsidy that will be applied to GEF ?Investment? (INV) funds will be based on a minimum concessionality principle. This principle can be achieved methodologically in different ways, for example by ensuring LCOE parity with a reference tariff; or based on willingness/ability to pay (which may be determined by a study during implementation). Such methodological assessments will be part of an overall package of financial due diligence/assessments that will be performed during the tender process to select recipients of pilot support. Each project?s CEO endorsement/approval request document (and UNDP Project Document) elaborates on this principle and establishes the need for each national project to develop, in close collaboration with other stakeholders and support from the AMP Regional Project, a detailed project plan (the project?s ?Minigrid Pilot Plan?) for advancing the minigrid pilot(s). Among other key aspects, the project?s Minigrid Plan Pilot Plan will determine the project?s approach to ensure minimal concessionality for the level of GEF INV support to the pilot(s). The project?s Minigrid Pilot Plan will first be reviewed for clearance by UNDP (CO and BPPS NCE), and then shared with the Project Board. In addition, for Eswatini, it should be noted that there has been no spontaneous uptake of minigrids in the country by commercial players. The first solar PV minigrid pilot project has been developed and commissioned in 2021 by the Eswatini Electricity Company i.e. the national power utility. Tariff setting is expected to be covered by the Minigrid and Off-grid Regulatory Framework that is currently being developed by ESERA that will lay a shared foundation for tariff design for all future minigrids. Potential social discontent on tariffs. Even when avoiding the risk of over subsidization of minigrid pilots by applying the minimum concessionality principle, there is a possibility that new minigrids have lower tariffs than existing minigrids which were developed with a lower grant element and/or in general incurred in relatively higher costs. As minigrids scale, and costs decline over time, electricity tariffs (particularly cost-reflective electricity tariffs) are expected to decline as well. Mitigation for this risk comes from the systematic national dialogue that national projects will promote and support under Component 1, concretely under Output 1.2. ?An inclusive national dialogue to identify minigrid delivery models is facilitated, clarifying priority interventions for an integrated approach to off-grid electrification?. Results from activities implemented in parallel under the other outputs will loop their respective (pre-)results back into the national dialogue discussions. This will include, but not be limited to, activities which can shed light on trends and progress regarding minigrid cost reduction, and the interplay between subsidies and electricity tariffs. With only one, recently commissioned minigrid in Eswatini, the risk is very limited.	Eswatini national project document: Section IV. RESULTS AND PARTNERSHIPS ? Description of Component 2 Eswatini national project document: Section IV. RESULTS AND PARTNERSHIPS ? Description of Component 1.

Comment & Response	Reference
Council Comments (Canada):	
11. Comment: *"Mini-grids can have important impacts on development, including on energy access, agriculture, health and education.* ***It would be interesting if the project could explore opportunities to make further linkages with rural development programs****."* **Response**: Indeed, energizing productive uses of energy in rural communities unlocks agricultural value and rural economic development that initiates a virtuous cycle of growth: increased and more predictable demand for electricity that improves the viability of minigrid operations, lowers the costs of supply and in turn improves affordability and gives more people access. Rural industrialization and value addition have been included for the AMP in Eswatini, including: - Output 1.1 (Geospatial mapping) makes provision for value chain mapping as a data overlay. - Output 2.1 and 2.2 (pilot projects) targets PUE, value addition and rural industrialization as an enabler for minigrids. It incorporates collaboration with the MSME Unit and the Department of Cooperatives, both within the Ministry of Commerce, Industry and Trade (MCIT) to support the establishment, formalisation and growth of small businesses and cottage industries through training and mentoring, value chain development, developing linkages to market and opening trade opportunities to regional and global networks. -	Eswatini national project document: Section IV. RESULTS AND PARTNERSHIPS ? Description of Components 1 and 2

Comment & Response	Reference
12. Comment: *"The mini-grids program has value for engagement where there are market failures,* ***and there should be entry points for the private sector****.* *The project is also was well-aligned with Ethiopia?s Growth and Transformation Plan and its objective of ?Building Climate Resilient Green Industry? and ?Expanding Energy Infrastructure and Ensuring its Quality?.* **Response**: We agree with this statement. AMP seeks to scale commercial and private investment in minigrids. Market failures will be identified and addressed. The design and activities of AMP Eswatini, seeks to create multiple entry points for the private sector. This includes (but is not limited to): - Output 1.2 on national dialogues, where delivery models will be explored and identified that engage private sector. - Output 1.4 on DREI techno-economic analyses, where the private sector will undergo structured interviews on their risk perceptions. - Output 2.1 and 2.2 on pilots, where the objective is to develop proof of concept business models that will demonstrate improved viability and encourage private sectir participation in the market. - Output 2.3 on capacity building among potential developers and operators to consider design parameters, innovative business models and cost-reduction levers, to improve project feasibility, with practical experience drawn from both pilot projects. - Output 3.5 that sets out to establish a local knowledge network among active and interested clean energy industry role-players to encourage information sharing, collaboration and innovation related to minigrid development and rural energy access.	Eswatini national project document: Section IV. RESULTS AND PARTNERSHIPS
Council Comments (United States):	

Comment & Response	Reference
13. Comment: *"The proposal addresses social acceptance risk but offers the use of policy and financial de-risking measures as a way to reduce cost, thereby increasing social acceptance risk. It does not address the value of messaging or public promotions and education campaigns to lower that risk further. Also, the program mentions working groups, but does not elaborate on make-up of the groups or state a commitment that the working groups will include representatives from local and community consumer and user stakeholders. Reviewers suggest a mechanism to ensure these groups include consumer stakeholders, indigenous representatives, and local authorities to educate and seek input on unexpected effects or consequences of the project at the local level."* **Response**: AMP Eswatini has considered risks arising from lack of awareness and resistance to renewable energy and minigrids in communities, among other risks driving high costs for minigrid development. Social acceptance issues are usually due to due to unfamiliarity with electricity and renewable energy sources; mis-information/perceptions and lack of awareness for mini-grid offerings; resistance from incumbent businesses (e.g., diesel based generation) and users (e.g., SHS), which can get disrupted by minigrids. AMP Eswtini seeks to address this risk by engaging and consulting with a diverse array of stakeholders, including representatives from local and community consumer and user stakeholders as per the Stakeholder Engagement Plan (Annex 9). In addition, salient among opportunities to engage and consult with representatives from local and community consumer and user stakeholders, is the national dialogue on delivery models Output 1.2.	Eswatini national project document: Section IV. RESULTS AND PARTNERSHIPS

Comment & Response	Reference
14. Comment: *"Finally, the program will promote a value chain approach to technology transfers that will integrate local labor and local industries / service providers in the development of solar PV-battery minigrids. Reviewers note that monitoring the value chain periodically to ensure sufficient local integration (or make the necessary adjustments) will be important to the success of the project. GEF may want to consult with experts at the U.S. Department of Energy?s Office of Electricity, which works with U.S. state and local electricity officials and industry groups, to share data and best practices"*	
Response: Local labor and industries, together with local private sector developers and service providers, will be a key element in the long term viability and sustainability of the minigrid market in Eswatini. While current capacity in Eswatini primarily exist as either utility scale RE or stand alone systems, these players did express interest in minigrid development and rural energy access. Accordingly, the AMP will contribute to build capacity and encourage local industry and skills development. Specifically, the AMP will collaborate with the Ministry of Commerce, Industry and Trade (MCIT) to identify opportunities for local development at the pilot sites, but also more broadly as relevant. Two project outputs focus on building local capacity among potential developers and operators of minigrids, covering design parameters, innovative business models and cost-reduction levers and opportunities to improve project feasibility (Output 2.3) and more general information sharing, collaboration and innovation related to minigrid development and rural energy access (Output 3.5). The two pilot projects, introducing innovative business models while also being the first solar PV minigrids in the country, are intended as demonstration facilities to inform future system design and development. Feedback loops to the National Dialogue (Output 1.2), Capacity Building (Output 1.3 and 2.3) and the Community of Practice (Output 3.4) are intended to actively disseminate the learnings from the pilots to inform both the policy and regulatory environment as well technical capacity building. At the regional project level, component 1 ?Knowledge Tools? will curate and disseminate materials and reports detailing examples of good practice in this area. The work developed by the U.S. Department of Energy?s Office of Electricity, with U.S. state and local electricity officials and industry groups, is one of the resources that will be leveraged for this purpose. In addition, supply chain actors and the private sector are stakeholders that will participate as members of the AMP community of practice and benefit from South-South cooperation, knowledge sharing, identifying common challenges, and reviewing outputs of the AMP.	Eswatini national project document: Section IV. RESULTS AND PARTNERSHIPS Regional Project Document: Section IV. RESULTS AND PARTNERSHIPS

Table 3: STAP Comments and Responses

Comment & Response	Reference

Comment & Response	Reference
1. Comment: *Mini-grids have much potential to bypass old development pathways for electrification. However, there is also growing literature on their pitfalls, which should be addressed. As with other GEF project proposals, more effort is needed to engage with the peer-reviewed literature on the topics. Examples of literature in this genre include:* ? Mini-Grids for the Base of the Pyramid Market: A Critical Review (*https://www.mdpi.com/1996-1073/11/4/813*); ? Mini-grid based off-grid electrification to enhance electricity access in developing countries: What policies may be required? (*https://www.sciencedirect.com/science/article/pii/S0301421516301781*); ? Rethinking the sustainability and institutional governance of electricity access and mini-grids: Electricity as a common pool resource (*https://www.sciencedirect.com/science/article/pii/S2214629617303638*); ? Institutional Innovation in the Management of Pro-Poor Energy Access in East Africa (*https://www.sussex.ac.uk/webteam/gateway/file.php?name=2015-29-swps-gollwitzer-etal.pdf&site=25*). **Response**: At the national project level, the project design drew on lessons from consultations with minigrid experts and development partners and extensive literature review, including (but not limited to): - GIZ, GET.transform (2020). A Renewable Energy Minigrid Technical Assistance Guide. Take-aways from 15 years of GIZ support in minigrid market development. April 2020. - UNIDO (2020). Clean energy mini-grid policy development guide Fast tracking rural electrification through accelerated and precise mini-grid policy formulation. - AMDA (2020). Benchmarking Africa?s minigrids. - SEforAll, BNEF and MGP (2020). State of the Global mini-grids Market Report 2020. Trends of renewable energy hybrid mini-grids in Sub-Saharan Africa, Asia and Island Nations. - IRENA (2016). Innovation Outlook: Renewable Mini-grids. - IRENA (2016). Policy and regulations for Private Sector Renewable Energy Mini-grids. - ESMAP (2019). Mini Grids for half a billion people. Market Outlook and Handbook for Decision Makers. Technical Report 014/19. - IFC (2020). Off-grid Solar. Market Trends Report 2020. - International Bank for Reconstruction and Development / The World Bank (2019). Electricity Access for Sub-Saharan Africa. - Berths Centre for Social Innovation and Entrepreneurship (2017).	

Comment & Response	Reference
2. Comment: Furthermore, there is considerable literature on the opportunities presented by blockchain technology for energy projects like this, including for renewable energy generation, distribution and management. STAP recommends that the project proponents explore the possibilities of using this technology to enhance the global environmental benefits of the project. Examples of relevant literature on this include: ? STAP?s blockchain paper (http://stapgef.org/harnessing-blockchain-technology-delivery-global-environmentalbenefits); ? Blockchain technology in the energy sector ? (https://www.sciencedirect.com/science/article/pii/S1364032118307184); ? Blockchain meets Energy (https://fsr.eui.eu/wp-content/uploads/Blockchain_meets_Energy_-_ENG.pdf); ? Blockchain: A true disruptor for the energy industry (https://www2.deloitte.com/content/dam/Deloitte/us/Documents/energy-resources/us-blockchaindisruptor-for-energy-industry.pdf). **Response**: As part to the PFD addendum approved in June 2021, a new component has been added to the regional project focused on mainstreaming the use of digital tools and solutions across national child projects and other national stakeholders. This is premised upon the notion that digitalization offers great potential for minigrid cost reduction. While no specific emphasis has been placed within AMP on developing Blockchain applications, the Regional Project will knowledge-build on and identify opportunities to add value via the use of digital tools and solutions for planning, operations, financing and other key applications.	

Comment & Response	Reference
3. Comment: A generic diagram of the theory of change for mini-grids is presented which starts with a diagnosis of risks and then proposes how to address them. However, this is linear and has only one step. There needs to be consideration of how particular kinds of policies could lead to change rather than just stating that policies will address the diagnostics. This diagram needs to be refined with more steps that unpack points like ?innovative financing? and ?business model and innovation? and ?policies and regulations.? Please see STAP paper on theory of change for further guidance: http://stapgef.org/theory-change-primer. **Response**: The theory of change diagram for the program has now been further developed and refined to unpack key policies/activities under each of the four main components, which indeed feed back to address the originally identified risks. A new outcome column has also been inserted. The country specific theory of change has also been amended to incorporate the refinements made at program level. This new theory of change diagrams are now reflected in the national project documents, as well as regional project documents, respectively.	Eswatini national project document: Section III. STRATEGY Regional Project Document: Section III. STRATEGY
3. Is the objective clearly defined, and consistently related to the problem diagnosis? **Comment**: Yes. **Response:** NA	
4. A brief description of the planned activities. Do these support the project?s objectives? **Comment**: Nicely described with clear objectives. **Response:** NA	

Comment & Response	Reference
5. A description of the expected short-term and medium-term effects of an intervention. **Comment**: These are adequately provided. **Response:** NA	
6. A description of the products and services which are expected to result from the project.Is the sum of the outputs likely to contribute to the outcomes? **Comment**: Adequately provided. **Response:** NA	
7. Is the baseline identified clearly? **Comment**: Baselines are linked to earlier Child projects. **Response:** NA	
8. What is the theory of change? **Comment**: There is a growing literature on the barriers to minigrid adoption. As with other GEF project proposals, more effort is needed to engage with the peer-reviewed literature on the topic. An example of an article in this genre which is open source is linked here: https://www.mdpi.com/1996-1073/11/4/813 **Response**: At the national project level a preliminary assessment of barriers and risks to minigrid adoption in Eswatini was included as part of Section II, Development Context. This informed the country specific theory of change included in the strategy section. This preliminary view will be supplemented by the Derisking of RE Investment study (Output 1.4) that will focus on country specific barriers and risks during implementation.	National Project Document: Section III. STRATEGY

Comment & Response	Reference
9. GEF trust fund: will the proposed incremental activities lead to the delivery of global environmental benefits? **Comment**: Cost reasoning is well defined. Monitoring and evaluation is noted adequately through the Child projects phase. The prior usefulness of these monitoring mechanisms should be reviewed. **Response:** At a national project level monitoring and evaluation has been expanded into a Quality Assurance and Management Framework (QAMF) that will aggregate data across the program and will link to specific outputs (e.g. publications and insight briefs) and intelligence to ensure the usefulness of collected data.	

Comment & Response	Reference
10. Are the benefits truly global environmental benefits, and are they measurable? **Comment**: The proposal identifies carbon mitigation benefits with adequate referencing of methods. Tradeoffs are not discussed but should be, in terms of reliability failures that can happen with mini-grids. What are the backups to prevent diesel generators from still being frequently used? Resilience needs to be built into the grid architecture to address times of power outages. **Response**: Minigrids are generally characterised by a very high availability. A recent report by the Africa Minigrid Developers Association (Benchmarking Africa?s Minigrids) shows that uptime of all monitored minigrids is 99% on average, which is significantly higher than all national interconnected grids. When power outages occur in minigrids, it is rarely due to inverter failure, but rather because the system shuts down due to overload or low battery state-of-charge (if there is no diesel generator), or because the diesel generator fails. Recent evidence is revealing that diesel generators are now more prone to failure than the renewable energy components. To prevent power outages, a minigrid should be sufficiently dimensioned. This can lead to larger amounts of excess energy being available at non-peak times, which cannot normally be used and reduce the overall system efficiency. Currently, new approaches are being developed that take advantage of artificial intelligence to manage loads, based on machine learning and stochastic optimization. Examples include intelligent control of diesel generators to minimise fuel consumption, demand side management to precisely control deferrable loads (e.g. water pumps) that can consume excess energy. All this leads to minimising outages and the need to use diesel generators. Electrified areas in Eswatini has a high electrification rate and quality of supply is generally good. Reliable and affordable electricity supply from the national power grid means that diesel generators are mainly used for back up purposes during power outages and predominantly by business operations dependent on continued power supply. At a national project level, consideration was also given to the use of diesel generation, both at national level and at the pilot sites. A summary of findings is included in the Project Document as Annex 22. The findings showed that Eswatini has a very small market (by number of units and energy generated) of diesel generators in use. Unelectrified areas are typically located in remote, rural areas. Electrification to these areas have been hindered by severe accessibility challenges that also present challenges for the transportation of generators and fuel. Accordingly, diesel generators are rarely used in these remote locations.	National Project Document, Section II. DEVELOPMENT CHALLENGE. National Project Document: Annex 22

Comment & Response	Reference
11. Is the project innovative, for example, in its design, method of financing, technology, business model, policy, monitoring and evaluation, or learning? **Comment**: Proponents have partnered with Rocky Mountain Institute which has a distinguished record of innovative approaches to energy policy and there are clear highlights of scaling out (even though they note this as scaling ?up?). There is a focus on finding innovative ways of cost reduction and also to consider financing linkages between minigrids to promote resilience following the Rockefeller Foundation?s CrossBoundary Energy Access (CBEA) investment. **Response:** NA	
12. Have all the key relevant stakeholders been identified to cover the complexity of the problem, and project implementation barriers? **Comment**: Adequate presentation of stakeholders through the UNF Minigrid Partnership. However, diesel generation industry is quite widespread in Africa and how to ensure they don?t sabotage prevalence of project and have incentives for new livelihoods should be considered. **Response**: Experience shows that deep-rural villages are usually not a market for the diesel generator industry as such. In many villages, however, individual owners of diesel or petrol generators can be found selling electricity to the neighborhood(s). These business models no longer work when a minigrid supplies the village with electricity. However, there is a significant demand for skilled labor in the minigrid sector. The local diesel generator operators can become important here, as they have the technical know-how on the one hand and know the respective village very well on the other. These skills can be put to good use, for example, for the rapid establishment of PUE, or in the context of rural industrialization approaches (e.g. KMM). At a country level consideration was given to diesel generators / generation in Eswatini with an overview of the findings included as a new Annex 22 to the Project Document. It found that the use of diesel generation in the country is limited, therefore confining the impact and risk of solar PV minigrids disrupting established industries and livelihoods. This was echoed by the baseline survey done at the EEC (Sigcineni) pilot site, preceding the development of the pilot project to which the AMP will contribute the PUE overlay (Output 2.1). Community members were specifically asked which energy sources they already used. None of the participants in the survey was currently using diesel generators. Acknowledging that there remain a level of risk, this risk and related mitigation actions have been added to the risks log and elaborated upon in the CEO Endorsement request/approval document (Part II, section 5).	National project document, Annex 22 and included as a risk in Annex 7. National project CEO Endorsement request, Part II, Section 5.

Comment & Response	Reference
13. Have gender differentiated risks and opportunities been identified, and were preliminary response measures described that would address these differences? **Comment**: Yes ? there is a fairly detailed section on gender aspects of this project. **Response:** NA	
14. Are the identified risks valid and comprehensive? Are the risks specifically for things outside the project?s control? **Comment**: Identified. Detailed climate risk assessment should be carried out. **Response:** A climate risk assessment has been performed and is included as Annex 17 Eswatini Project Document.	
15. Are the project proponents tapping into relevant knowledge and learning generated by other projects, including GEF projects? **Comment**: Good coordination details provided based on historical relations as well. **Response:** NA	
16. What overall approach will be taken, and what knowledge management indicators and metrics will be used? **Comment**: Identified and details adequately provided. **Response:** NA	

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

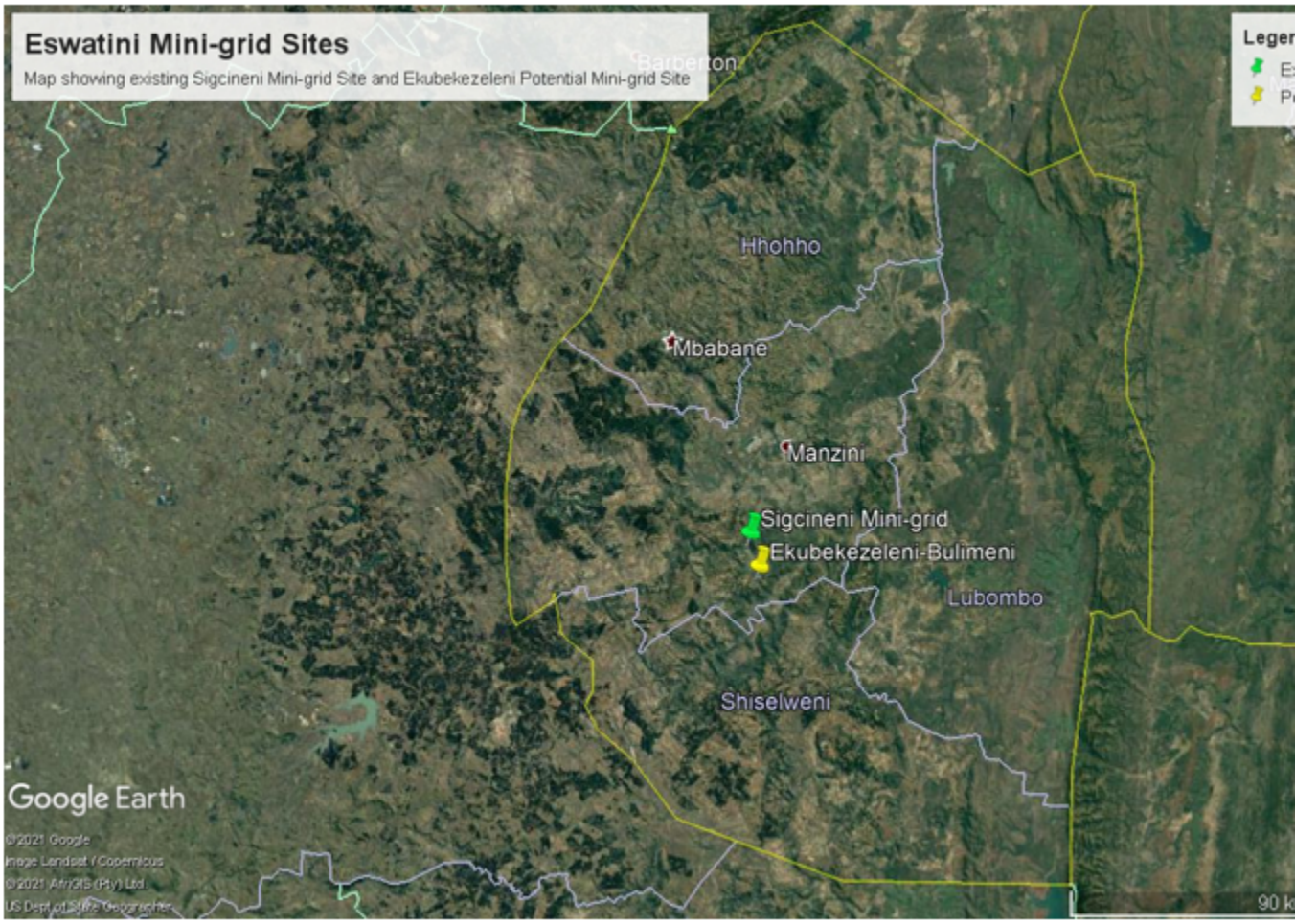
Project Preparation Activities Implemented	*GETF/LDCF/SCCF Amount ($)*

	Budgeted Amount	*Amount Spent To date*	*Amount Committed*
Technical assistance (design technical elements as well as all the required financial and administrative components of the project)	50,000	21,269	28,731
Total	50,000	21,269	28,731

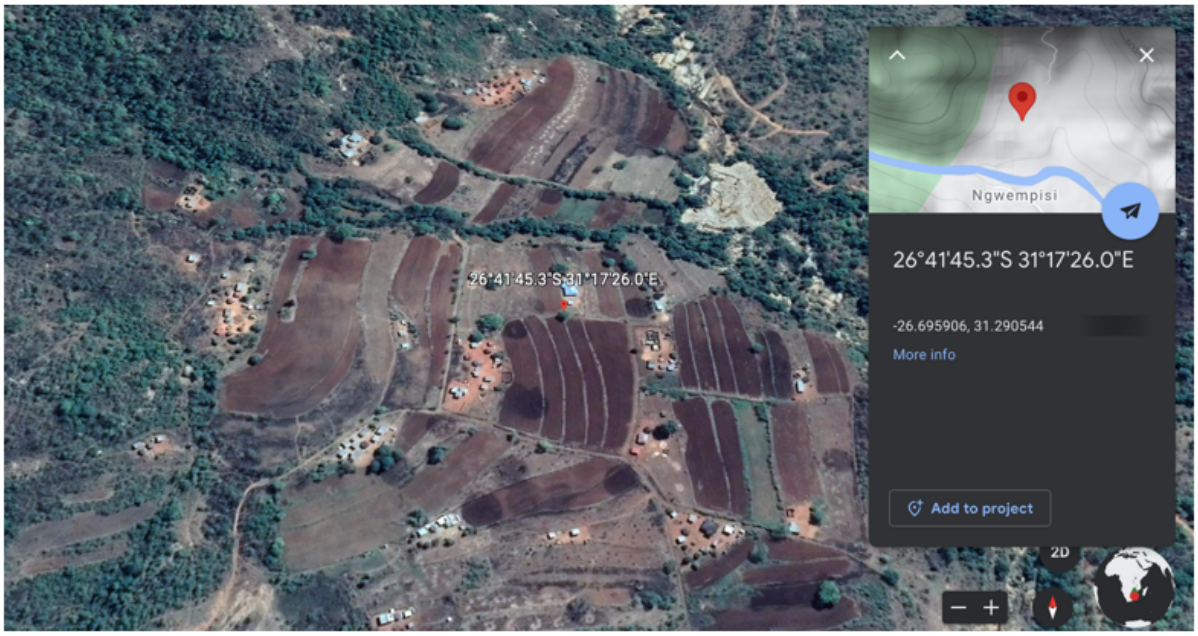
ANNEX D: Project Map(s) and Coordinates

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

Two project sites are identified for the pilot projects under Component 2, Output 2.1 and 2.2.



Pilot site 1: Sigcineni
The village is isolated by the Ngwempisi river and accessible only by footbridge (no road access) with GPS coordinates: 26?41?45.26? S, 31?17?25.96? E, elevation 461m.



(Provisional) Pilot site 2: Energy Hub, Ekubekezeleni, Bulimeni area
The pilot site is located at the following GPS coordinates: 26?45?29? S; 31?18?33? E, elevation 939m.

ANNEX E: Project Budget Table

Please attach a project budget table.

Expenditure Category	Detailed Description	Component (USDeq.)						Total (USDeq.)	Responsible Entity
		Component 1	*Component 2*	*Component 3*	*Sub-total*	*M&E*	*PMC*		(Executing Entity receiving funds from the GEF Agency)[1]
Equipment	Procurement of equipment, electrical equipment/appliances for small businesses and households, additional metering infrastructure and extension of electrical connections and all ancillary works, as relevant. Equipment costs for Pilot 1 is budgeted at USD 25,000, with USD135,000 of the budget allocated for Pilot 2. The capital cost budget for Pilot 2 is based on a 20kWp solar PV battery minigrid system and the development of an energy hub of productive uses. [Total 160,000]		160,000		160,000			160,000	Ministry of Natural Resources and Energy (MNRE)

Contractual services-Individual	Procurement of contractual services ? Individual, to support the implementation of the gender action plan for Component 2, including participation by women in design, consultation on priority PUEs, ownership and operating model, business development and training tailored to women. Budgeted at USD 15,000 to be spent during years the first two full years of implementation.		15,000		15,000			15,000	Ministry of Natural Resources and Energy (MNRE)

Contractual services-Company	Contractual services under Component 1 are foreseen to include: - Contracting with the UNCDF for the delivery of Output 1.1, including sourcing of data and developing of GIS-based mapping information to supplement grid expansion planning and facilitate the identification of areas suited to minigrids in Eswatini. The budget allocation for data sourcing, analysis for gender sensitive information and development of the GIS-based mapping information is costed at USD 149,000 over the first two years of implementation. In addition to gender sensitive analysis work included in this budget (USD 10,000), an additional provision is made for input from a gender specialist to support data analysis and interpretation (refer international consultants, Budget note 1). [Total 149,000] - Under Output 1.3, contracting of services (anticipated to be a technical consultancy, academic institution or learning academy with access to a suitable technical expert) to tailor universal or generic knowledge / training / learning material sourced from the regional project for relevance to the Eswatini context. Provision is made for an annual development cost of USD5,000 per year for the first 3 years.	166,000			166,000			166,000	Ministry of Natural Resources and Energy (MNRE)

Contractual services-Company	Contractual services are planned under Component 2, to support the pilot projects. For pilot 1, the productive use overlay, these include: - Facilitation of stakeholder engagement, market research and data collection (through consultation, focus groups, surveys, etc.) to identify PUEs, electrical equipment and business development priorities and track socio-economic impacts with specific focus on inclusion of gender and youth. The cost for these services and continued provision over the AMP implementation period is budgeted at USD 20,000. [Total 20,000] - Design, development and operation of the PUE overlay pilot project. This is estimated separately at USD12,500, but is likely to be part of a single contract for the overall delivery of the PUE overlay development that will include equipment costs (refer Budget note 4). [Total 12,500] - Business development support in the form of training, mentoring, business registration and administration, provided to small businesses and cottage industries. This will be supplemental to the MTIC MSME unit training and mentoring commitment and is costed at USD 1,000 per year in year 3 and 4 of implementation. [Total 2,000] For pilot 2, the Energy Hub, these include:		114,111		114,111			114,111	Ministry of Natural Resources and Energy (MNRE)

Contractual services-Company	Contractual services under Component 3 are foreseen for: - Procurement of service provider to develop a project website (or webpage on MERA website) for ongoing publication of knowledge resources with counter of unique visits and registration system to track downloads. An initial development fee of USD 4,000 with annual maintenance support at USD 500. [Total 6,000] - Support for the development of a technical strategy in consultation with the regional project. [Total USD 10,000] - Establishment and tailoring of a digital platform for data collection (USD 10,000), tendering (USD 13,000), and annual licensing fees (USD 600 per year for 4 years). [Total USD 25,400] - Procurement of service provider (potentially academic institution) to conduct data and trend analysis, including consideration to gender and youth specific indicators, and develop case studies, knowledge resources and research publications for the pilot projects (estimated at USD 15,000 over 3 years). [Total USD 15,000] - Procurement of service provider to set up and maintain the Quality Assurance and Monitoring Framework in compliance with guidance provided from the regional project. Once off			74,196	74,196			74,196	Ministry of Natural Resources and Energy (MNRE)

International Consultants	International Consultants to be procured for the following services related to Component 1: - A gender specialist under Output 1.1 to support a gender-sensitive analysis of mapping data, assessment of potential opportunities for minigrid locations and assist in establishing a balanced portfolio of eventual sites. A budget allocation of USD 5,053 is made for gender related inputs during the initial mapping phase (year 1 and 2). [Total 5,053] - Under Output 1.2, National Dialogue, a provision of USD 2,000 per year has been made for Technical Assistance services. This is to secure access to expertise from the regional project on issues of policy, regulation, minigrid planning and identification of a delivery model, to be available to the National Dialogue. An additional USD 5,000 has been allowed in year 4 for input from the panel of experts into the formulation of various aspects of the Eswatini Minigrid Vision and Roadmap that is scheduled for development in this year. [Total 13,000] - Subject matter expertise (SME) for capacity building of specific interest to public officials and members of the National Dialogue under Output 1.3, with the aim to provide input into the tailoring	24,053			24,053			24,053	Ministry of Natural Resources and Energy (MNRE)

International Consultants	Under Component 2, International Consulting services are foreseen for: - The regional panel of experts to provide inputs on PUE overlay design, structure and business model of pilot 1. A provision of USD 3,000 has been allocated for each of the first two years to cover 7 to 8 days of expert review and design input into design aspects related to growing the PUE component, tariff design, innovations in the operating and business model. [Total 6,000] - Similarly, the regional panel of experts are expected to provide inputs on the Energy Hub design, structure and business model (pilot 2). USD 10,000 has been allocated to year 3 to cover 10 to 12 days of expert review and design input to the design and development of the Energy Hub, tariff structures and innovations in the operating and business model, as required. [Total 10,000] - Under technical assistance, Output 2.3, an allowance of USD 7,405 has been made for the procurement of services from international consultants (subject matter expertise) to provide input to the tailoring of generic training material, sourced from the regional project, for the Eswatini context. [Total 7,405]		23,405		23,405			23,405	Ministry of Natural Resources and Energy (MNRE)

International Consultants	Procurement of international consultants/service providers under Component 3 to deliver on: - Development and implementation of the monitoring framework with particular focus on M&E of indicators specific to the GEF core indicators and results framework. An annual provision of USD 3,000 over 4 years of implementation has been made for a service provider approved by the regional project. [Total 12,000] - Conducting an independent terminal evaluation of the project, budgeted at USD 28,000. This is below the recommended allocation, but dictated by the available cash budget for the project and the M&E cost cap. [Total 28,000] - Technical Advisory support from the Regional Project to set up the monitoring, reporting and verification across all indicators to ensure data quality, integrity and compliance when integrated at program level. A once off provision of USD 3,000 is made for this purpose. [Total 3,000]			43,000	43,000			43,000	Ministry of Natural Resources and Energy (MNRE)

Local Consultants	Provision of USD 25,000 is made for the procurement of local consulting services to develop the Eswatini Minigrid Vision and Roadmap with support from the regional project. Access to regional project support and/or technical assistance for this activity was costed separately under International Consultants (refer budget note 1).	25,000			25,000			25,000	Ministry of Natural Resources and Energy (MNRE)
Local Consultants	National consultants have been planned to support the two pilot projects under Component 2 in terms of the socio-economic safeguards and ESMF assessment, data collection, monitoring and management requirements. For Pilot 1 (PUE overlay) the budget for national consultants is USD 10,000 over 4 years. For pilot 2, the estimated costs are USD 19,000 for 4 years. [Total USD 29,000]		29,000		29,000			29,000	Ministry of Natural Resources and Energy (MNRE)

Local Consultants	Procurement of a technical writer to develop lessons learnt under the guidance of the PMU and with inputs from the regional project. The budget estimate is based on the development of 2 to 4 case studies per year, with the actual number dependent on the extent of research and data analysis required to produce content. An additional allowance is made in the second year of implementation to develop a country insight brief in collaboration with the regional project [Total 13,000]			13,000	13,000			13,000	Ministry of Natural Resources and Energy (MNRE)
Local Consultants	Contractual services ? Individual, to serve as project and financial assistant to support the PMU. USD 18,000 per year with a pro rata allocation in Year 1 (last quarter of 2021 only) and a pro rata allocation in year 5 (first three quarters of 2025).				-		70,477	70,477	Ministry of Natural Resources and Energy (MNRE)

Training, Workshops, Meetings	Training, Workshops and Conferences: - Provision for the organization, logistics and catering of one physical meeting of the National Dialogue per year over the 4-year project period (USD 1,500 per year). It is anticipated that other (quarterly) meetings will be held online. National Dialogue meetings can also be scheduled to precede or follow the annual, physical Project Board/Steering Committee meeting to share costs. [USD 6,000] - Provision of an additional USD 2,000 in the last year for workshop(s) to develop delivery models, vision and roadmap. - USD 2,000 allowed per year to host webinars and training events for capacity building (Output 1.3) [Total USD 8,000] - Dissemination event(s) for DREI findings USD 3,000	19,000			19,000			19,000	Ministry of Natural Resources and Energy (MNRE)

Training, Workshops, Meetings	A provision of USD 5,000 per year has been made for a sponsorship of the inaugural training courses that will be offering the newly developed and introduced course material, to allow for subsidised (reduced fee or cost free) attendance by participants during the first 4 years with specific focus on inclusion of women and youth among the trainees. [Total USD 20,000]		20,000		20,000			20,000	Ministry of Natural Resources and Energy (MNRE)

Training, Workshops, Meetings	Training, Workshops and Conferences: - Provision for the organization, logistics and catering for the inception workshop. A once off budget allocation of USD 3,000. - Further provision for the organization of annual project board meetings over the 4-year project period. An annual allocation of USD 1,000 per year to host one physical meeting and/or to facilitate attendance by pilot project community representatives at online meetings, as necessary. Noting the cost savings potential if hosted alongside the annual physical meeting of the National Dialogue. [USD 4,000] - Procurement of services for organization of training and knowledge sharing events to facilitate the dissemination of knowledge and peer-to-peer knowledge sharing and networking among members of local community of practice. Provision is made for 3 events per year with a budget of USD 1,000 per event. Events may be conducted online or in person and may take different formats such as a workshop, training session or lecture, presentation of case study, clinic, site visit or webinar. [USD 12,000] - Capacity building for use of digital platform, USD 5,000. [Total USD24,000]			24,000	24,000			24,000	Ministry of Natural Resources and Energy (MNRE)

Travel	Provision for travel and logistics by the DREI consultants during study, data collection and dissemination events (budgeted atUSD7,500 consisting of two return flights at USD1,800, accommodation (8 nights at USD250 per night) and local car rental with driver at USD1,900 for 10 days) [Total USD7,500]	7,500			7,500			7,500	Ministry of Natural Resources and Energy (MNRE)
Travel	Travel and logistics include: - Costs for travel and logistics of nominated representative(s) to attend Community of Practice events hosted by the regional project. Costing is based on travel from Manzini, Eswatini to Istanbul, Turkey (flights ranging between USD840 and USD1300), accommodation for 4 days per year (quotes ranging between USD224 and USD1,350) and a daily allowance of USD100 per day. [USD 16,000] - Travel and logistic costs for independent, international consultants to conduct the terminal evaluation, estimated at USD4,000. [Total travel USD20,000]			20,000	20,000			20,000	Ministry of Natural Resources and Energy (MNRE)

Other Operating Costs	Design and layout (packaging) of knowledge material for: - Case Study and/or lessons learnt developed into one or two page publications for online distribution and/or print. Budget allocation of USD 500 in the first year and USD 1,000 per year for 3 years. [USD 3,500] - Knowledge Network knowledge events for online distribution and/or print with a budget of USD1,000 per year for 4 years of implementation. [USD 4,000]			7,500	7,500			7,500	Ministry of Natural Resources and Energy (MNRE)
Other Operating Costs	Annual audit costs allocated as UD 2,000 per year.				-		8,000	8,000	Ministry of Natural Resources and Energy (MNRE)
Grand Total		**241,553**	**361,516**	**181,696**	**784,765**	**-**	**78,477**	**863,242**	

ANNEX F: (For NGI only) Termsheet

Instructions. Please submit an 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 Agencys 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).