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United Nations Development Programme

PROJECT DOCUMENT

Project title: National Child Project under the Africa Minigrids Program - Ethiopia		
Country: Ethiopia	Implementing Partner (GEF Executing Entity): Ministry of Water and Energy	**Execution Modality:** National Implementation Modality (NIM)
Contributing Outcome: (from UN Sustainable Development Cooperation Framework 2020-25) Outcome 3: All people in Ethiopia benefit from an inclusive, resilient and sustainable economy. Outcome 4: All people in Ethiopia live in a society resilient to environmental risks and adapted to climate change.		
UNDP Social and Environmental Screening Category: *Substantial*	**UNDP Gender Marker:** *2*	
Atlas Award ID: 00136624	Atlas Project/Output ID: 00127444	
UNDP-GEF PIMS ID number: 6338	**GEF Project ID number:** 10478	
LPAC meeting date: May 9, 2022		
Last possible date to submit to GEF: 31 July 2021		
Latest possible CEO endorsement date: 19 December 2021		
Project duration in months: 48		
Planned start date: July 1, 2022	**Planned end date:** June 30, 2026	
Expected date of Midterm Review: July 1 2023	**Expected date of Terminal Evaluation:** March 31, 2026	
Brief project description: Ethiopia's National Electrification Program (2019) sets forth ambitious plans for universal access to electricity by 2025, with an expected 35 percent of new connections to involve off-grid technology. Minigrids and private sector, including cooperatives, are major planned elements for realizing these ambitions. The Africa Minigrids Program (AMP) in Ethiopia seeks to support the Ministry of Water and Energy (MoWE) of Ethiopia in the timely implementation of the NEP, while also		

achieving global greenhouse gas (GHG) emissions reductions. The Africa Minigrids Program (AMP) will achieve these ends through targeted interventions in policy and regulations to support the roll-out of minigrids, advancement of cooperative-led delivery models, scaled-up financing with de-risking, and digital and data management to ensure cost effective delivery of electricity services. Building upon extensive recent and ongoing work that MoWE and other development partners have already been carrying out, the AMP will improve the financial viability and reduce the investment risk of solar PV minigrids. This will be done through enhancing minigrid revenues, reducing costs, and raising the efficiency and competence of the local minigrid market. Financial sustainability and revenue enhancement will take place from AMP's support for productive use, benefitting both minigrid developers and the citizen entrepreneurs (especially women) whose business prospects and livelihoods will be improved as a result of electricity access, access to finance and capacity building through the AMP. The project is expected to bring about the commissioning of at least 0.624 MW in photovoltaic generation capacity and 1.523 MWh of battery storage. The lifetime greenhouse gas emissions reduction from project activity is estimated at 16,836 tonnes of CO_{2eq} (direct) and 4.905 million tonnes CO_{2eq} (indirect). The number of direct beneficiaries is estimated at 31,625 people, of which at least 50 percent are women.

FINANCING PLAN	
GEF Trust Fund grant	USD 2,890,826
UNDP TRAC resources	USD 300,000
▪ *Total budget administered by UNDP*	*USD 3,190,826*
CO-FINANCIERS THAT WILL DELIVER PROJECT RESULTS INCLUDED IN THE PROJECT RESULTS FRAMEWORK. (FUNDS NOT ADMINISTERED THROUGH UNDP ACCOUNTS)	
Ministry of Water and Energy of Ethiopia(In kind Contribution)	USD 12,473,751
African Development Bank(Parallel Investment)	USD 1,000,000
Total confirmed co-financing	**USD 13,473,751**
Grand Total Project Financing	**USD 16,664,577**

SIGNATURES		
Signature: Semereta Sewasew State Minister	Agreed by Ministry of Finance	**Date/Month/Year:**
Signature: Habtamu Itefa Geleta Minister	Agreed by Ministry of Water and Energy	**Date/Month/Year:**
Signature:	Agreed by UNDP[1]	**Date/Month/Year:** 22/8/2022

[1] For NIM projects this is the Resident Representative. For DIM projects in a single country this is the Resident Representative. For global, regional DIM projects this is BPPS.

The Federal Democratic Republic of Ethiopia Ministry of Finance 5

The Federal Democratic Republic of Ethiopia Ministry of Water & Energy 1

UNITED NATIONS DEVELOPMENT PROGRAMME

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ACRONYMS AND ABBREVIATIONS

AAiT	Addis Ababa Institute of Technology
ADELE	Accelerating Distributed Electricity and Lighting in Ethiopia (World Bank project)
AfDB	African Development Bank
AMAP	Africa Mini-Grid Market Acceleration Programme (African Development Bank project)
AMP	Africa Minigrids Program
P&EA	Petroleum and Energy Authority
EEU	Ethiopian Electric Utility
EnDev	Energising Development [a project of GiZ]
EPC	Engineering, procurement, and contracting
ESIA	Environmental and Social Impact Assessment
ESMF	Environmental and Social Management Framework
ESMP	Environmental and Social Management Plan
FCA	Federal Cooperative Agency
FSP	Full Sized Project
GEF	Global Environment Facility
GEFSEC	Global Environment Facility Secretariat
GiZ	Deutsche Gesellschaft für Internationale Zusammenarbeit [German Agency for International Cooperation]
GoE	Government of Ethiopia
MG	Minigrid(s)
MIC	MoWE Innovation Center [see MoWE, below]
MoWE	Ministry of Water and Energy
NEP	National Electrification Program (version 2.0)
PFD	Program Framework Document
PIR	GEF Project Implementation Report
POPP	Programme and Operations Policies and Procedures
PPG	Project Preparation Grant
PPP	Public-private partnership
RMI	Rocky Mountain Institute
STAP	GEF Scientific and Technical Advisory Panel
UNDP	United Nations Development Programme

II. DEVELOPMENT CHALLENGE

Ethiopia is the second-most populous country in Africa, with approximately 115 million citizens as of 2021. The nation's population, which comprises 76 ethnic groups, has doubled since the late 1990s and is expected to reach 145 million by 2030.[2] Ethiopia has undergone rapid socioeconomic development in the last two decades, with improvements in health care delivery, education, and increased consumption. As a result, the share of the population living below the poverty line declined from 44 percent in 2000 to 24 percent in 2015-163. These advances have been especially notable in urban areas, but slower in rural areas, where 80 percent of the population resides.

Electricity access and the National Electrification Program

Ethiopia has approximately 4,200 MW of installed electric generation capacity as of 2020, most of which is hydroelectric (89 percent), with some wind (8 percent) and a small share of fossil-fired thermal generation (about 3 percent). About 40 percent of the population has electricity access. There is a sharp disparity between electricity access in Ethiopia's cities, where about 85 percent of households are grid-connected, and the country's rural areas, where access remains at only about 29 percent.[4] Lack of electricity services is especially pronounced in rural areas furthest away from the existing grid. In peri-urban areas (within 2.5 km from the existing grid), about 20 percent of citizens have electricity access via off-grid sources. In rural areas (2.5 to 25 km from the grid), access stands at about 5 to 10 percent, while in deep rural areas (more than 25 km from the grid), only 5 percent of people have electricity access.[5]

In accordance with its broader ambitions for continued economic growth and poverty reduction, especially for the most economically vulnerable, the Government of Ethiopia (GoE) has set forth a goal of universal electricity access by 2025. This plan is embodied in the National Electrification Program (NEP), first developed in 2017 and then updated in 2019 (NEP 2.0). The Ministry of Water and Energy (MoWE) oversees the implementation of the NEP and is responsible for achieving its ambitious targets.

NEP 2.0 envisions that 35 percent of power generation by 2025 will be off-grid, including both stand-alone solar PV systems and minigrids, in contrast to about 13 percent in 2020. Minigrids will be an important element of this growth of off-grid electrification. A geospatial mapping conducted under NEP 2.0 has identified more than 1,300 sites as potentially suitable for minigrids, given their distance from existing medium-voltage power lines and their proximity to population clusters.

Minigrids remain quite new and sparsely applied in Ethiopia, with only about 36 diesel-powered minigrids owned and operated by the Ethiopian Electric Utility (EEU), plus scattered unregulated diesel minigrids throughout the country. But in accordance with NEP 2.0, MoWE has been laying the foundation for rapid and systematic scale-up, with a focus on solar PV-powered minigrids. The policy enabling environment has been greatly enhanced in the past few years, starting with NEP 2.0 itself and culminating in the new

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[2] *World Population Prospects 2019*. UN Department of Economic and Social Affairs. https://population.un.org/wpp/Publications/Files/WPP2019_DataBooklet.pdf

[3] World Bank Group, 2014. *Ethiopia Poverty Assessment 2014* (https://openknowledge.worldbank.org/handle/10986/21323) and World Bank Group, 2020. *Ethiopia Poverty Assessment: Harnessing Continued Growth for Accelerated Poverty Reduction (https://documents1.worldbank.org/curated/en/992661585805283077/pdf/Ethiopia-Poverty-Assessment-Harnessing-Continued-Growth-for-Accelerated-Poverty-Reduction.pdf)*

[4] https://www.usaid.gov/powerafrica/ethiopia. Webpage updated in August 2020 and accessed in April 2021.

[5] *Ethiopia - Access to Distributed Electricity and Lighting in Ethiopia (ADELE) Project* (English). Washington, D.C. : World Bank Group (2021). http://documents.worldbank.org/curated/en/167861617328904373/Ethiopia-Access-to-Distributed-Electricity-and-Lighting-in-Ethiopia-ADELE-Project

Minigrid Directive, whose adoption by the Petroleum and Energy Authority (P&EA) in mid-2021. The new directive provides a comprehensive regulatory framework, including technical standards and inspections of minigrids, tariff structure, licensing requirements, and general provisions for grid arrival.

While at a nascent stage, the development and deployment of renewable minigrids in Ethiopia have progressed. For instance, 37 pilot solar PV-powered EEU-owned minigrids with financing and technical support from the World Bank and the African Development Bank (AfDB) became operational in 2020. These and other development partners are expanding support for green minigrid development in Ethiopia. Most notably, the World Bank is building upon its years of previous work on minigrids in Ethiopia through the *Accelerating Distributed Electricity and Lighting in Ethiopia (ADELE)* project. ADELE will provide $240 million in financing for solar minigrids and $25 million in associated technical assistance.

The development challenge: Removing remaining barriers to scaling solar minigrid deployment

NEP 2.0, the geospatial mapping, and completed, ongoing, and planned donor-funded initiatives collectively provide a robust foundation of policy and planning to support Ethiopia to meet its electrification ambitions. Even so, the Government faces significant challenges in turning these aspirations to reality. Achieving these targets requires that 9 million connections are provided between 2021 and 2025 – a vastly accelerated rate of connecting new users.

To achieve the ambitious targets Ethiopia needs to move beyond state-owned and public sector and donor-funded minigrid delivery models to greater involvement of agricultural cooperatives and private-sector developers that can leverage private sector financing. The challenges especially involve financial risks, as well as the paucity of in-country minigrid developers, operators, and suppliers with the expertise and management skills. These and other factors, which are summarized in Table 1 below, can be characterized as investment risks that impact costs and the financial viability of minigrids.

Table 1 Investment Risks Inhibiting the Rapid Scale-Up of Solar Minigrids in Ethiopia

Risk Category	Risk Description	Root Barriers Underlying the Risk in Ethiopia
Energy Market Risk	Risks arising from limitations and uncertainty in the energy market regarding market outlook, access, price and competition	1. Inability of private minigrid developers to access the electrification market, uncertainty about potential future competition, the absence of publicly available grid extension plans and timelines 2. Subsidized grid tariff sets unrealistic expectations for minigrid tariffs
Social Acceptance Risk	Risks arising from lack of awareness and resistances to renewable energy and minigrids in communities	• Cost-reflective tariffs practiced by private developers might be higher than the tariffs that EEU charges
Hardware Risk	Risks arising from limitations in the quality and availability of minigrid hardware and productive use equipment, as well as the	• Lack of a competitive market for buying hardware from international and domestic suppliers • The absence of standardized performance specifications

Risk Category	Risk Description	Root Barriers Underlying the Risk in Ethiopia
	customs treatment of such hardware and equipment	• Inconsistent administration of customs process for importing hardware leads to delays in delivery; high customs tariffs on hardware
Digital Risk	Risks arising from use of cellular networks for remote grid management, operations, monitoring and payments; the use of software, and abuse of consumer data	• Lack of cellular coverage in rural areas where electrification is needed • Overdependence on a single operator for reliable cell service and payment processing • Low mobile money penetration
Labor Risk	Risks arising from the lack of skilled and qualified minigrid installers and maintenance personnel	a) Lack of skilled, and qualified potential installers and maintenance personell, leading to continued reliance on foreign service providers, and higher costs, and delays in installation.
Developer Risk	Risks arising from limitations in the minigrid operator's management capability, and its creditworthiness and cash flow	a) Lack of experience to ensure effective execution and to manage challenges b) Lack of experience in remote operations and maintenance of solar PV minigrids c) Lack of established local minigrid companies that could finance, build and operate more than a couple of minigrids
End User Credit Risk	Risks arising from customers' willingness, ability, and methods of payment for electricity	1. Lack of information on end-user credit worthiness: Lack of end-user credit data with which to assess the ability of end-users to pay and ancillary equipment (e.g. lights and appliances)
Financing Risk	Risks arising from scarcity of domestic investor capital (debt and equity) for minigrids, and domestic investors' lack of familiarity with minigrids and appropriate risk mitigation	2. Limited availability of long-term domestic loans due to high banking reserve requirements 3. Low number of well-capitalized actors and regulatory risks coupled with revenue risks 4. The absence of appropriate risk mitigation 5. Lack of information, assessment skills, and track-record for minigrid projects amongst domestic investor community; lack of network effects found in established markets; lack of familiarity and skills with appropriate project finance structures
Currency Risk	Risks arising from currency mismatch between domestic currency revenues and hard currency financing	1) Limitations on exchanging Ethiopian Birr to hard currency 2) Fluctuations of exchange rates over the term of the debt

Risk Category	Risk Description	Root Barriers Underlying the Risk in Ethiopia
Sovereign Risk	Risks arising from a mix of cross- cutting political, economic, institutional and social characteristics not specific to minigrids	3) Limitations and uncertainty related to conflict, political instability and ease of doing business 4) The policies for minigrids are nascent and the Minigrid Directive has yet to be enacted. None of them have been tested on the Ethiopian market.

Adapted from Derisking Renewable Energy Investment: Off-Grid Electrification. UNDP (2018).

Removing these barriers is critical for the financial viability of minigrids and for scaling the markets to help achieve the off-grid access targets of NEP 2.0. Rural electricity access will help achieve poverty reduction, increased socioeconomic opportunity for women and all citizens, and accelerate the recovery from the economic effects of the COVID-19 pandemic, while avoiding incremental greenhouse gas emissions. Given the extensive baseline activity, coordination and consideration of incrementality is paramount for the design of the AMP.

III. STRATEGY

The objective of the Africa Minigrids Program (AMP) in Ethiopia is supporting access to clean energy by increasing the financial viability and promoting scaled-up commercial investment in renewable minigrids in Ethiopia, with a focus on cost-reduction levers and innovative business models. The AMP project in Ethiopia is part of the broader Africa Minigrids Program, which includes national projects in 18 countries and a regional umbrella project. All AMP projects share a common approach, seeking to reduce minigrid costs via four country-level components, across three key areas of opportunity – minigrid delivery models, productive use, and digital/data-driven approaches – as summarized in Figure 1.

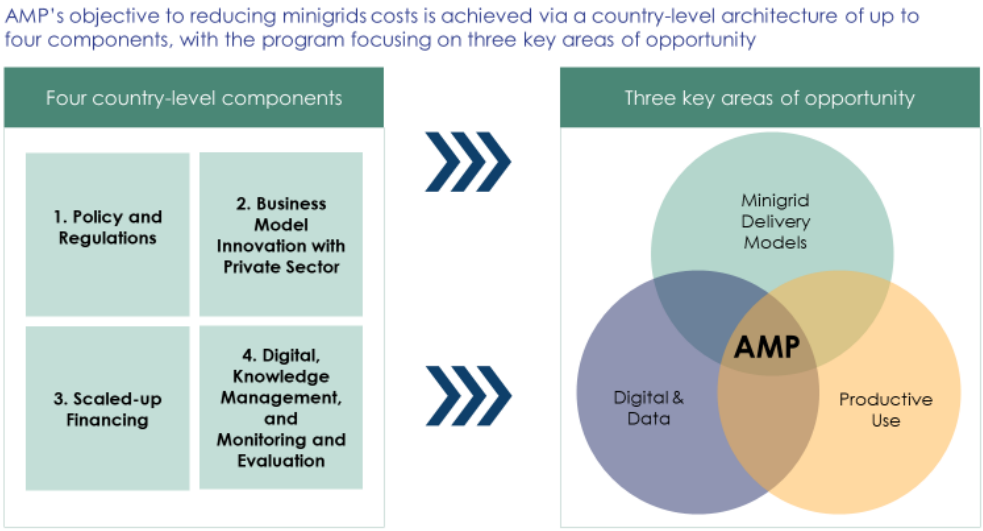


Figure 1 AMP's objective, architecture and areas of opportunity

The four components include (i) policies and regulations, (ii) business model innovation and private sector engagement, (iii) scaled-up financing, and (iv) digital technology and data, knowledge management, and monitoring and evaluation. The theory of change of the AMP is presented below in Figure 2.

These components are designed to systematically target and alleviate the investment risks that raise the costs of minigrid development, especially but not exclusively for the private sector. Removal of the risks will help reduce the costs of both financing and hardware, while also helping to improve revenue streams. This is envisaged to improve the attractiveness of the market for investors. Ultimately, accelerated deployment of minigrids leads to greenhouse gas emissions reductions relative to diesel-powered generation, as well as to the socioeconomic benefits of poverty reduction and increased opportunity for women.

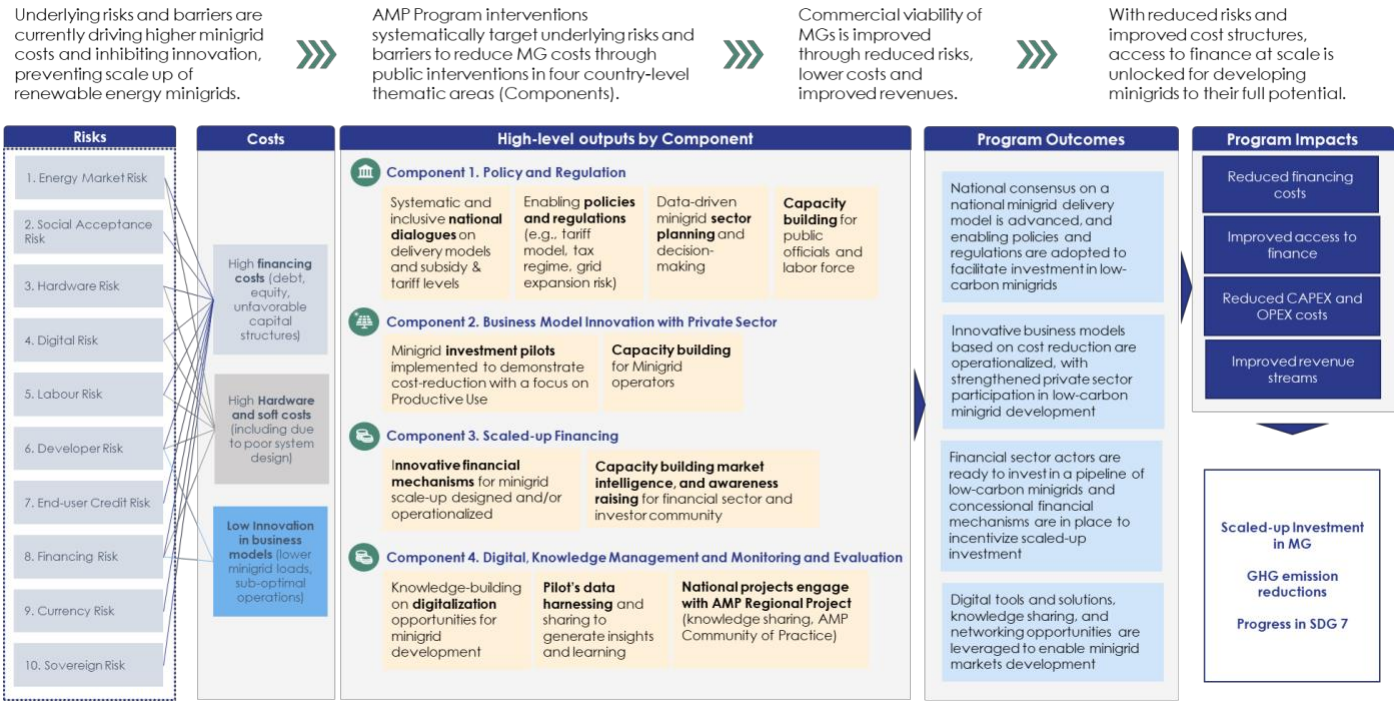


Figure 2 Theory of Change of the Africa Minigrids Program

The AMP in Ethiopia – scoping for incrementality

While the AMP project in Ethiopia shares the strategic logic of the region-wide AMP its specific elements are unique to the country. Activities have been designed taking into account the existing and planned initiatives by MoWE and development partners. These initiatives largely provide coverage of much of the originally envisioned activities under the AMP. Ongoing and planned initiatives include enabling policy and regulations, geospatial planning, and capacity enhancement for MoWE, EEU and P&EA; pilot private-led minigrid development and broad productive use support; linkages with financing for both minigrids and productive use; and development of digital platforms, as well as compilation and sharing of best practices.

Extensive stakeholder consultations were undertaken during the project preparation for the AMP. The AMP team consulted with national agencies including MoWE, EEU, P&EA, the Rural Electrification Fund, and the Addis Ababa Institute of Technology (AAiT) at Addis Ababa University and development partners including the World Bank, AfDB, Rocky Mountain Institute, GIZ, and the Rockefeller Foundation. These consultations have ensured effective donor coordination and led to an improved focus and a revised design of the activities under the AMP, with identification of specific risks, barriers and root causes, along with actions to address them (

Table 2).

Table 2 Detailed Matching of Barriers, Root Causes, and Interventions of the AMP in Ethiopia

Barriers	Root cause	Response	Risks and Assumptions
Administrative complexity, regulatory uncertainty, and	There is a need for clarification of specific responsibilities and capacity building at the Federal Cooperative Agency (FCA) and the Rural	Support for national dialogue, associated capacity enhancement and arrangements for	Assumption of coordination with the Petroleum and Energy Authority, which regulates minigrids

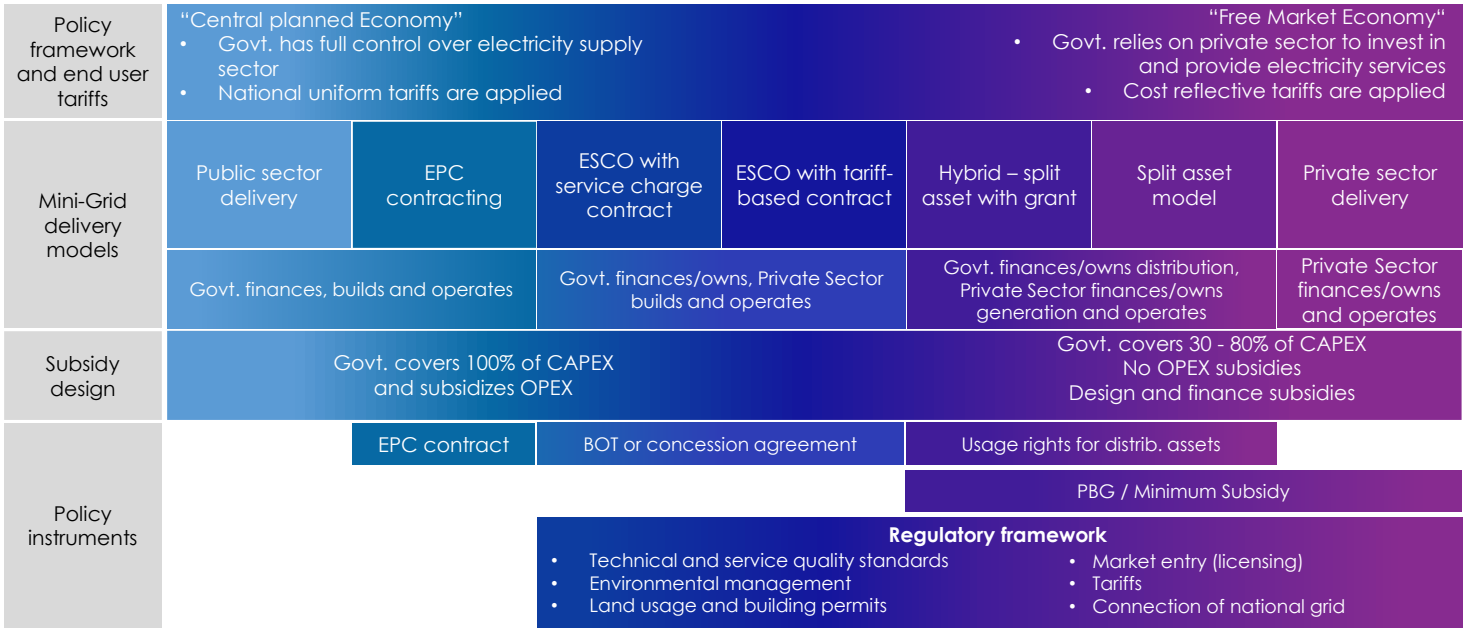
low familiarity with regard to minigrid activity by agricultural cooperatives	Electrification Fund with regard to minigrids	implementation of cooperative minigrid delivery model(s) (Output 1.1) Implementation of pilot minigrids under cooperative delivery models. (Output 2.1)	
Uncertainty in revenues and the risk of sunk investment costs from minigrids after grid arrival.	NEP 2.0 envisions that around 1100 new minigrids are needed for electrification in areas where the grid will arrive, but not by 2025. The prospect of grid arrival creates significant added financial risk for such minigrids. The P&EA minigrid directive does set forth general provisions for grid arrival. Furthermore, Rocky Mountain Institute is supporting MoWE in in developing investible business models that account for grid arrival scenarios. Still, there remains a significant need to further develop technical provisions and contracting language in order to support minigrids in this market segment.	Establishment of technical and contract provisions, and consultation with developers and financiers on grid arrival arrangements (Output 1.2)	Assumption that minigrids will indeed be deployed as transitional "pre-electrification" solutions in some areas, not only as permanent sources of electricity in the remotest areas
Prohibitively high costs of both financing and minigrid hardware	Even as minigrid development is beginning under NEP 2.0, commercial debt and equity financing of minigrids in Ethiopia is essentially absent because of high investment risks as noted in Table 1. There is a need to identify these risks, assess their relative importance, and to design targeted interventions to remove, transfer, or compensate for them in order to raise the willingness of lenders and investors to support minigrid developers, especially in the cooperative and private sectors.	Quantitative De-Risking Renewable Energy Investment (DREI) analysis based on UNDP methodology (Output 1.3)	The Rockefeller Foundation is supporting a study on minigrid investment de-risking as of the summer of 2021. This output is designed based on the assumption that in terms of both methodology and findings, AMP can add value beyond the Rockefeller-supported study. AMP will seek close coordination to ensure that this assumption is realized.
Insufficient policy framework and enforcement mechanisms regarding decommissioning of minigrids and disposition of minigrid waste, including batteries	Lack of previous need for waste management for minigrid components	Development of decommissioning strategy and guidelines on waste management for minigrid components (Output 1.4)	Other areas of policy and regulation are well covered by previous and planned work of MoWE and the P&EA, with support especially from the World Bank, but minigrid decommissioning and waste management have not been fully addressed

The creation of new initiatives in minigrid development and productive use by AMP and others creates the need for new capacity building at MoWE and its sectoral agencies	MoWE's experience and organizational capacity with regard to minigrids and productive use does not yet match the scale of its plans and ambitions with regard to minigrid expansion	Capacity-building for MoWE and sector agencies via the MoWE Innovation Center (Output 1.5)	Close coordination of training with other donor agencies that are also supporting the MoWE Innovation Center
Low and/or uncertain revenues from minigrid operation because of uncertain or unstable electricity demand, as well as untapped opportunities in productive use	Productive use in support of minigrids is new in Ethiopia's rural areas. There is a need for extensive outreach, technical and business planning assistance, and financial assistance to advance productive use activities.	Technical assistance for productive use in association with AMP-supported minigrids. (Output 2.2) Design support for financing and risk mitigation instruments, as well as development of operational guidance, provided for minigrid and productive use financing facility (Output 3.1)	Development of agro-industrial productive use is already supported by multiple development partners. Close coordination ensures complementarity and sharing of lessons learnt.
Scarcity of in-country solar minigrid developers, installers, operators, and maintenance staff with needed technical and managerial qualifications	Limited training and higher education offerings on solar minigrid design, installation, operation, maintenance, and financial management	Training, higher education programs, and internships established for minigrid design, installation, operations, maintenance, and business models. (Output 2.3)	The Addis Ababa Institute of Technology (AAiT) at the Addis Ababa University has confirmed the need and interest in creating and delivering enhanced training curricula.
Reluctance of commercial banks to finance solar minigrids	Lack of technical understanding and market awareness of minigrids among domestic financial institutions, as well as hesitancy to support new developers without strong balance sheets	Design support for financing and risk mitigation instruments, as well as development of operational guidance, provided for minigrid and productive use financing facility (Output 3.1) Domestic financial sector capacity-building on business and financing models for minigrids (Output 3.2)	Assumption of willingness of commercial banks to participate in this activity given the evolving minigrid market Assumption that there will be demand from minigrid developers for commercial financing because of business opportunities and gaps in purely donor-funded financing

Efficiencies and data-driven insight from application of digital technology and data analysis to minigrid and productive use remain largely untapped	Not only are minigrids themselves new in Ethiopia – so too is experience with application of digital technology to business management in general	A Digital Strategy is developed and implemented, including linkages to and following guidance from the AMP Regional Project (Output 4.1) Minigrids digital platform implemented to run tenders and manage data from pilots, and to support minigrids scale-up and cost-reduction (Output 4.2)	These AMP outputs have been developed based on the assumption of close coordination with baseline efforts of other donor-funded projects to develop digital platforms, with AMP contributing incrementally with a focus on digital management of the initiatives primarily supported by AMP (especially Outputs 1.2, 1.4 and 2.1)

Minigrid delivery models and the AMP in Ethiopia

Minigrid delivery models, determined by the national government, are the cornerstone of a country's over-arching minigrid policy and planning framework. The selection of delivery models defines who finances, builds, owns, operates and maintains the mini-grids. Where applicable, it seeks to engage the private sector. Successful minigrid delivery models are closely associated with other key components of a minigrid framework, including tariff structures and subsidy levels/mechanisms. Figure 3 summarizes the range of minigrid delivery models.



Source: JAKOB SCHMIDT-REINDAHL, Mini-grids Policy Expert, INENSUS

Figure 3 Conceptual outline of minigrid delivery models

In the years leading up to NEP 2.0, MoWE and development partners led by the World Bank conducted an extensive national dialogue on where Ethiopia's minigrid strategy should fall within this range of delivery models. As a result of this strategic scoping, the predominant delivery model has been state ownership under engineering, procurement, and contracting (EPC) implementation, as shown in the light-blue cells on the left side of the diagram. Under this model, contracted foreign firms supply and install minigrids, provide training, and hand over the minigrids to the Ethiopian Electric Utility (EEU) to own and operate. This model will continue to be the main vehicle for solar minigrid development in the next five years. The state-driven utility/EPC model reflects the reality that the private minigrid sector in Ethiopia is still nascent in terms of both technical capacity and market viability.

At the same time, MoWE and EEU recognize that diversification of delivery models is highly desirable, in order to relieve personnel burdens on the EEU and to reduce cost for the Government and taking into account limitations in available concessional donor financing. Such diversification would include private minigrid development supported by state and donor subsidies in public-private partnerships (PPP) via a minimum subsidy tender, as articulated in NEP 2.0. Accordingly, in the next few years, the World Bank's ADELE project will provide technical and investment support for both utility/EPC and private/PPP delivery models.

The NEP's vision for diversification of minigrid delivery models envisages an important role for agricultural cooperatives. Such cooperatives operate throughout Ethiopia, enabling private-sector farmers and herders to organize, pool resources, and share knowledge, thereby strengthening efficiencies, raising outputs, reducing costs, and lifting livelihoods. They are a vital [6] across rural Ethiopia, with over 23 million members.[7] The Federal Cooperative Agency (FCA) oversees and supports implementation of cooperative-led minigrids.

Engaging cooperatives in minigrid deployment is envisaged to play a key role both in minigrid development and in productive use. Therefore, they have a role in the timely and effective implementation of the rural electrification ambitions of NEP 2.0. Currently cooperative delivery models are essentially absent in Ethiopia. The challenges of cooperative minigrid development are closely parallel to those of private minigrid development, including the barriers of low technical capacity, uncertain financial viability, and lack of access to affordable debt and equity financing. There are also gaps in the enabling regulatory and institutional oversight framework with regard to the obligations of cooperatives and the roles and oversight processes of the FCA. The German development agency GiZ is supporting policy development, capacity building, and pilots on cooperative-led solar minigrids through its Energising Development project (EnDev), but both MoWE and GIZ affirm the need for much more work in these areas if the cooperative delivery model is to be realized at scale. Table 3 below summarizes the state of minigrid delivery models in Ethiopia.

Table 3 Current Status of Minigrid Delivery Models in Ethiopia

Aspect	Current Status
Ownership and operation	First 37 pilot solar minigrids being implemented under financing from the World Bank and African Development Bank under state ownership (utility/EPC model), with implementation by foreign firms and subsequent training and assumption of operations by the EEU. This model is expected to remain the predominant approach in Ethiopia during the next five years, with most financing coming from the World Bank's ADELE project.

[6] https://allafrica.com/stories/202106300739.html
[7] https://allafrica.com/stories/202106300739.html

Aspect	Current Status
	Private minigrid development is also envisioned, with state-donor subsidies to be delivered via PPP (the Minimum Subsidy Tender), also with support from ADELE. The German development agency GIZ is supporting the development of ten pilot cooperative minigrids under donor-provided financing, with accompanying technical assistance on planning and capacity enhancement at the Federal Cooperative Agency.
Tariff structure	The Minigrid Directive developed by the Petroleum and Energy Authority sets forth detailed principles and procedures for defining minigrid tariffs, based on recovery of capital and operating costs, as well as prevailing market conditions, the ability of customers to pay, and the imperative of providing a reasonable return on private investment. For any individual customer, the tariff for the first kWh consumed per week must be equivalent to the national average (targeted at $0.07/kWh for on-grid customers), but any subsequent consumption is permitted to be charged at higher rates to be calculated and approved by the P&EA according to the principles and procedures of the Directive.
Subsidy mechanisms	The NEP 2.0 sets forth the terms of the Minimum Subsidy Tender, a process by which private developers bidding on tenders for minigrid development determine the amount of state/donor subsidy needed for adequate financial viability.
Regulations	NEP 2.0 provides a clear policy framework for minigrid development in the country, supported by the Minigrid Directive, which provides for requirements for licensing and permits, and establishes the basis for which tariffs will be set for both utility/EPC and private/PPP delivery models. Cooperatives are permitted to own and operate minigrids. If these minigrids provide electricity services to cooperative members only, they are subject to oversight by the Federal Cooperative Agency. If services are provided to customers who are not cooperative members, they are subject to the regulatory oversight of the Petroleum and Energy Authority.
Technical and staff capacity	The Ethiopian Electric Utility is rapidly scaling up its staff capacity for solar PV minigrids, but faces challenges in procuring and organizing needed expertise. Technical capacity for minigrid development and operations among private companies and cooperatives is largely absent. The existing EPC contractors active in the minigrid market in Ethiopia are largely foreign firms.

The AMP in Ethiopia will mainly focus on cooperative-led models, but the waste management policy work and capacity building for developers and operators will have benefits across all delivery models and help build the future minigrid market.

The project will align with the AMP Regional Project to foster knowledge sharing, learning, and synthesis of experiences in a multi-directional manner– i.e., flowing from the AMP Regional Project to the Ethiopia project, and from the Ethiopia AMP project to the Regional Project and the other national projects of the AMP. The AMP Regional Project will connect countries to knowledge, resources and networks of best practice and will support the rapid deployment of expertise, solutions and tools to support on-the-ground implementation. The main role of the AMP Regional Project is to make best practices in regulations and policies, innovative and inclusive business models, digitalization and financing available to all AMP beneficiary countries.

IV. RESULTS AND PARTNERSHIPS

Expected Results

The AMP in Ethiopia will carry out a number of interrelated activities across the four components. The components and expected results are common to all of the national projects of the AMP are as follows:

1. Policy and Regulations. *Targeted outcome:* Stakeholder ownership in a national minigrid delivery model is advanced, and appropriate policies and regulations are adopted to facilitate investment in renewable minigrids.

2. Business Model Innovation with Private Sector. *Targeted outcome:* Innovative business models based on cost reduction operationalized to support and strengthen private participation in renewable minigrid development

3. Scaled-up Financing. *Targeted outcome:* Financial sector actors are ready to invest in a pipeline of renewable minigrids and concessional financial mechanisms are in place to incentivize scaled-up investment.

4. Digital, Knowledge Management and Monitoring and Evaluation. *Targeted outcome:* Data and digitalization are 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.

The design of the activities has taken into account ongoing and planned initiatives supported by donors to ensure incrementality. In some instances, the AMP fills a gap on the markets, such as the support to scaling cooperative delivery models. In other cases, the AMP builds on existing work and/or works in close coordination with other donor supported initiatives. This particularly pertains to capacity building activities. The design of the AMP is flexible enough to accommodate unknown future initiatives and the fact that the market is expected to evolve rapidly over the near term.

The project will have access to the AMP network, including a variety of dedicated technical and operational support from the AMP regional project, which will enhance the various components, outputs and activities listed in this section. More information on the linkages with the AMP Regional Project is provided in

Box 1.

Box 1 Linkages to the AMP Regional Project –Access to technical and operational support

As part of the AMP network, the project will have access to (if requested):

1. **Access to specialized expert international consultants in selected areas** (DREI, data, GIS modeling, mini-grid business models, etc.) hired, retained, contracted and paid for by the AMP regional project and made available to all participating national project staff and selected beneficiaries on as needed basis. The areas of support, listing of available firms/individual consultants under contract by the regional project and protocol for how the project can request and/or access such expertise (if needed/requested) will be elaborated in the first year of regional project implementation and disseminated to this project and the staff of all other participating AMP national projects. This support may range from virtual assistance to in-country missions. All requests for such assistance must be approved by the project manager of the AMP regional project management unit.
2. **Provision of a database of qualified international consultants and firms** disaggregated by their expertise in the four main components of this national project and other key operational areas (procurement, M&E, communications, etc.). These individuals will not be retained or contracted under the regional project but rather provided to the project for informational purposes only in an effort to assist in identifying high-quality experts and firms who may be available for contracting by national governments under their own procurement rules and modalities.
3. Provision of generic terms of reference (ToR) for various standard activities (mentioned above) under the four main components of the national project.
4. **Advisory support by the AMP regional project management unit** to staff of the project on trouble shooting (operational support, ToR reviews and problem solving) on an ad-hoc and as-needed basis. These services will be paid for the regional project and available on a first-come/first-serve bases under a protocol to be established by the regional project.
5. **Specialized advisory support for implementing UNDP's minigrid DREI analyses.** During project implementation, the UNDP DREI Core team, working with the regional project, will make available to national teams and consultants the resources and tools to conduct full quantitative DREI applications, and will provide ongoing support and quality assurance.

A full detailed elaboration of these offerings and the protocols attached to each service will be communicated to the project at the inception workshop of the regional project and at the inception workshop of each national project.

Component 1. Policy and regulations

Component 1 will strengthen the policy and regulatory enabling environment paving the way for a successful deployment of cooperative-led renewable minigrids. Building upon the strong previous and ongoing work by other donor-funded projects (most notably the World Bank's ADELE project) on policy and regulations as well as capacity support for MoWE, Component 1 is focused on (i) critical analysis, policy development, and capacity enhancement to address gaps needed for cost-effective deployment of cooperative minigrids, (ii) institutional, financial, and contractual arrangements for grid arrival, (iii) investment de-risking analysis for minigrids, (iv) development of a strategy for minigrid decommissioning and associated waste management,, and (v) capacity building for MoWE staff and its sectoral institutions via the new MoWE Innovation Center.

Component 1 will have the following outputs:

Output 1.1. Support for national dialogue, associated capacity enhancement and arrangements for implementation of cooperative minigrid delivery model(s). MoWE with support from development partners has advanced in the development of public (utility-owned) and public-private partnership delivery models. NEP 2.0 also foresees cooperative-led minigrids as an important model, complementing the other models for expanding minigrids in Ethiopia. MoWE has therefore requested that the AMP focus on the cooperative-led delivery model.

While the Petroleum and Energy Authority (P&EA) bears responsibility for promulgating and enforcing regulations for all minigrids, the Federal Cooperative Agency (FCA) is responsible for providing facilitation for minigrid deployment by cooperatives and cooperative unions under the oversight of the Rural Electrification Fund (REF). Under this output, AMP will contribute staff and consultant time in support in the development of needed institutional capacity and processes at the FCA and REF.

Two approaches are currently envisaged under the cooperative minigrid delivery model, which will be further explored during project implementation. The first approach entails supply, installation and training undertaken by a contracted third party, with ownership, operations and maintenance fully managed by the cooperative. It is expected that this approach would require significant up-front capacity building for the cooperative. The second approach envisaged comprises cooperative ownership but with supply, installation, operations, maintenance, and trainings contracted to a third party for the first few years of operations. This approach would be contracted with specified performance targets to be achieved by the private sector. These approaches are summarized in Table 4 below.

Table 4. Ownership and Contracted Responsibilities Under Two Possible Variants of the Cooperative Delivery Model

Summary of model	Ownership of minigrid	Design, supply, installation, training	Operation and maintenance	Ownership of productive use equipment
Cooperative-owned and operated	Agricultural cooperative	Third-party minigrid developer	Agricultural cooperative	Agricultural cooperative or third-party equipment leasing company
Cooperative-owned with third-party operation	Agricultural cooperative	Third-party minigrid developer	Third-party minigrid developer	Agricultural cooperative or third-party equipment leasing company

Output 1.1 will be achieved through the following activities.

- *Activity 1.1.1.* Support for the establishment of a working group or a similar platform that includes all relevant stakeholders from Government, agricultural cooperatives, local authorities, civil society, local media, private sector, rural populations, and others, and initiate a national dialogue to identify the optimal cooperative minigrid delivery model(s). This dialogue will lead to definition of key issues regarding who finances, builds, owns and who operates and maintains the minigrids.

- *Activity 1.1.2.* Provide gap analysis, best practice reports, and recommendations for cooperative-owned delivery models and make sure that the probable consequences of any decision taken for

the overarching framework are evaluated and well understood by all stakeholders, including cooperatives, private firms contracted for implementation, regulators, and end-users.

- *Activity 1.1.3.* Provide technical advisory services to FCA and REF on institutional and reporting arrangements for the deployment and ongoing management of performance of cooperative delivery model(s).

Output 1.2. Establishment of technical and contract provisions, and consultation with developers and financiers on grid arrival arrangements. The Rocky Mountain Institute (RMI) is currently supporting MoWE in a project entitled Enabling Innovative Business Models for Clean Transitional Minigrids in Ethiopia, to be launched in July 2021. This project focuses on developing investible business models, accounting for grid arrival scenarios. This project will result in a report detailing various business models and project archetypes, ownership structures, and contractual options suitable to encourage private-sector investments in this sector. The RMI project will also seek to facilitate the de-risking of 3-5 pilot transitional minigrids. Building on this work AMP will support the following activities under Output 1.2:

- *Activity 1.2.1.* Development of comprehensive technical provisions and grid arrival regulations, in close consultation with the Petroleum and Energy Authority y, complementing the grid arrival framework set forth in P&EA's Minigrid Directive (promulgation forthcoming in 2021).

- *Activity 1.2.2.* Expansion of direct consultation to minigrid developers and financiers on relevant regulations, contract language, technical provisions, and institutional arrangements for transitional minigrids, to support scaling of transitional minigrids beyond the initial pilots

Output 1.3. Execution of the De-risking Renewable Energy Investment (DREI) analysis for solar PV minigrids. DREI was developed by UNDP in 2013 to assist policymakers in developing countries to cost-efficiently scale up private sector investment in renewable energy. In Ethiopia, the AMP will conduct DREI analysis to identify and cost specific barriers and risks that impede private investment in solar PV minigrids, and provide recommendations of the appropriate risk allocations, financial structures and public sector and/or donor interventions that serve to reduce, transfer and/or compensate for such costs.

The DREI analysis will be undertaken during the first and fourth year of project implementation.

This analysis will serve three key purposes for the AMP Ethiopia project:

- Track and monitor the project's impact in achieving its objective of reducing minigrid costs – financial costs, capital costs for soft costs,
- define and prioritize de-risking interventions and help refine the specific actions to be conducted under AMP Output 3.1 (design of financial facility for minigrids and productive use), and
- contribute to national and regional knowledge products, creating opportunity for dialogue and south-south learning.

For the DREI analysis, AMP will undertake consultations and interviews with minigrid developers, investors and lenders and other local and/or regional financial institutions, seeking to quantify the effects of various investment risks on the costs of capital and debt financing. Results from these interviews and analysis will be compiled in a report summarizing these quantitative effects. The Year 1 report will include recommendations on prioritized interventions to remove the risks and thereby reduce, transfer, or

compensate for the most important costs. The Year 4 report will summarize how perceived risks and costs have changed in the intervening time. The analyses will be conducted in close coordination with the AMP regional project.

MoWE is currently undertaking a minigrid investment de-risking study under support from the Rockefeller Foundation. This AMP DREI output will go beyond the existing Rockefeller-supported study in terms of its interview-based methodology and engagement of financial-sector stakeholders, as well as the potential to link de-risking recommendations to regional findings and de-risking facilities. AMP will closely coordinate this output with the Rockefeller study to maximize complementarity and avoid redundancy.

Output 1.3 will be achieved by the following activities.

- *Activity 1.3 1. Initial, full quantitative national DREI analysis (Year 1)*. A full quantitative DREI application will be conducted in the first year of project implementation. The PMU will assemble a task team to perform the national DREI analysis including consultants (international, national), government stakeholders, and members of PMU. Deliverables will include interviews, completed financial models, and national reports/knowledge products. Initial TORs for these consultants are annexed to the project document (ProDoc). This national analysis will be funded by the national project. The AMP Regional Project can in turn provide various support on DREI to the national project: including finalizing TORs for the country-level, recommendations (in the form of a vetted roster of consultants) on international consultants that are trained on DREI already, as well as resources and tools (Excel models etc.) to conduct the DREI analysis. Results from the full quantitative national DREI analysis will be shared with the regional project to feed into a regional flagship AMP knowledge product, across all AMP countries, on DREI and lowering mini-grid costs. This regional AMP knowledge product will be funded by the regional project.
- *Activity 1.3.2. Dissemination of DREI analyses and adaptive management (Year 2).* In the first half of Year 2, the project will disseminate the national DREI analysis and, in the second half of Year 2, the flagship DREI regional knowledge product (south-south learning) through dissemination activities at the national level. Together, these dissemination activities will encompass 3 or 4 round-table workshops with government, cooperatives, private sector and other key stakeholders, over a 12-month period. Along-side these dissemination activities, the PMU will utilize the findings of the national DREI analysis to inform Output 3.1 (financial derisking facilities), any adaptive management of the national project's outputs/activities to address identified needs for public measures arising from the national DREI analysis. These activities will be funded by the national project.
- *Activity 1.3.3. Coordination with regional project on national DREI analysis update (Year 4).* In the final year, or year 4, of the national project's implementation period, whichever happens first, the original national-level DREI analyses will be refreshed to track evolutions in financing costs as well as in hardware and soft costs. For administrative efficiency, the regional project will fund and execute this update (a 'light quantitative DREI analysis'), on behalf of the national project. The deliverable will be a brief note of 2-5 pages on the DREI national update. The data from the national refreshed DREI analysis will be fed into an update note to the year 2 flagship regional DREI knowledge product, which will provide an end-of-program overview of the evolution in mini-grid costs across AMP countries. The national project's contribution to this activity will be: facilitating the DREI national update (to be executed by the regional project); disseminating the findings of the national DREI update note, and the update to the regional flagship DREI product.

Output 1.4. Development of decommissioning strategy and guidelines on waste management for minigrid components. MoWE has standardized technical specifications for minigrid lithium batteries to ensure operating life, low flammability, and minimal toxicity and environmental impact. However, the value chain for recycling and waste management is far from sufficient to deal with the future of the mini-grid and solar PV and battery market. It is expected that the demand for waste management will by far outstrip the available capacity. Additionally, there are no recycling facilities in rural areas and the logistics for safe transport to existing facilities in urban areas have yet to be established.

To address this this need, the AMP will develop a national minigrid plant decommissioning strategy, based on an assessment of existing and forecasted waste streams as well as international best practices. In conjunction with this strategy, this AMP output will also include establishment of a depository and reporting system that enables tracking and forecasting of minigrid waste and recycling needs to ensure that the MoWE, Ministry of the Environment and local authorities can determine and plan for capacity requirements. This system will be coordinated with existing digital platforms for minigrid planning and management, including the platform to be developed and implemented under Output 4.2.

AMP will achieve this output via the following activities.

- *Activity 1.4.1.* Assessment of existing markets and regulations, with forecasts for expected waste volumes and needs for recycling and waste management

- *Activity 1.4.2.* Preparation of a report with recommendations on minigrid plant decommissioning and associated waste management, based on the assessment of Activity 1.4.1 and a review of international best practices

- *Activity 1.4.3.* Preparation of a best-practice operational guide on waste management for minigrid developers and owners, consistent with the recommendations of the report prepared under the previous activity

- *Activity 1.4.4*. Development of a tracking and reporting system for the forecasting of minigrid decommissioning schedules and associated waste management and recycling needs

Output 1.5. Capacity-building for MoWE and its sectoral institutions via the MoWE Innovation Center (MIC). MoWE has established a new policy that all feasibility studies, pilot projects, and similar activities introducing or leading to new interventions should include capacity-building for MoWE and its sectoral institutions. Such capacity-building is needed to enable MoWE to establish and implement evidence-based strategy, policy, and regulations nationally as minigrids are scaled up under various delivery models. Enhanced capacity at MoWE thus also strengthens the sustainability of AMP project results and supports scaling up of AMP-facilitated business models and minigrid investments after project completion.

MoWE is establishing the MoWE Innovation Center (MIC) as its hub for such capacity-building efforts. Under this output, AMP will support capacity-building at the MIC via development and delivery of training to MoWE and its institutions on the themes of all of AMP's other outputs and activities, including alternative delivery models, grid arrival, minigrid waste management and decommissioning, productive use, and financing.

This output will be achieved via the following activities.

- *Activity 1.5.1*. Organization and delivery of at least one training session per year (including provisions for web-based participation where applicable) for the staff of MoWE, EEU, P&EA, REF, and other sectoral institutions on AMP interventions

- *Activity 1.5.2.* Ongoing provision of guidance by AMP staff and contracted experts in response to specific questions and requests from MoWE and its institutions

Component 2. Business model innovation with private sector

Component 2 will enhance the technical capabilities and the cooperative-led delivery models of minigrid developers. This component builds upon MoWE's ongoing efforts to pilot and test the viability of these alternative business models in coordination with productive use, with the ultimate goal of reducing costs, securing sustainable revenues, and documenting the business case for these models in order to attract market entrants and investors.

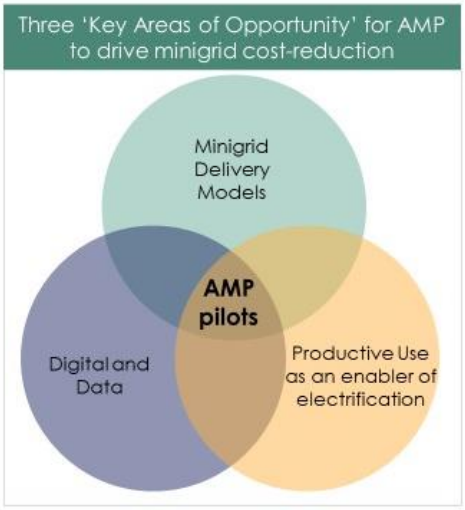
Component 2 comprises the following outputs.

Output 2.1. Implementation of pilot minigrids under cooperative delivery models. AMP will support the implementation of renewable energy pilot minigrids, to be financed and deployed under one or more cooperative delivery models.

This component will support site selection based on MoWE's priorities and the NEP 2.0; stakeholder engagement at these sites; system optimization and smart design for generation, storage, and distribution; business case and financial analysis; and facilitation of licenses and construction permits as relevant. The scope of works will include the development of performance and technical specifications in accordance with Ethiopian requirements, and the full procurement cycle, including evaluation, up until award of contract. The type of contract will depend on the delivery model deployed.

As part of this output, AMP will provide limited investment assistance to partially cover the cost of minigrid capital expenditures. The proportion to be covered will depend on the needs identified in the aforementioned financial analysis, as well as the capacity of the cooperatives or the private developers providing design, installation, operation, and maintenance services.

This output is aligned to the strategic purposes and operational principles of pilots common to all AMP national projects. As shown in Figure 4 below, the pilots will not merely implement minigrids in areas where they were previously absent, but also provide proof-of-concept of the cooperative-led minigrid delivery model, demonstrating financial viability in association with productive use supported. The pilots will also provide a laboratory in which to demonstrate, test, and document the opportunities for increasing operational efficiency via digitalization and the use of data analytics in conjunction with Component 4.



AMP Pilots:

- Seek to demonstrate a particular delivery model or elements of a delivery model
- Benefit from having a clear delivery model around which the government wishes to build capacity and engage with minigrid developers
- Seek to demonstrate productive uses of electricity to reduce costs and enable minigrid development at scale
- Seek to demonstrate opportunities around digitalization and the use of data for minigrid cost reduction
- Leverage digital tools and solutions (via a comprehensive data management platform) to run minigrid tenders and monitor minigrid pilot performance

Figure 4 Objectives of Pilots in AMP National Projects

Minigrid Pilot Plan and key principles for pilot implementation

In the initial six months of implementation, the project will 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 pilot(s). Building on the initial design information in this Project Document and its annexes, the project's Minigrid Pilot Plan will determine, among other aspects, the following:

- The objective for the pilots
- The proposed type of pilot. The pilots will involve greenfield cooperative minigrids with productive use overlays.
- The cooperative minigrid delivery model, which will be demonstrated in the pilots. Cooperatives will own the minigrid, with various possibilities for contracting out implementation (design, installation, operation, maintenance) to third-party entities from the private sector. The cooperative could sell electricity only to its members, or possibly to others in the local community if applicable.
- The estimated target number of pilot(s), based on the project's GEF-funded budget for investment support. It is expected that the project will support at least one, and possibly as many as three, cooperative minigrid pilots.
- Site selection principles and process (see the following subsection on the process and principles for site selection)
- Site-specific assessments and planning for social and environmental safeguards (SES) assessments and gender action
- Site-specific technical assessments in other required areas (e.g. demand profiling and e-waste disposal)
- The use of the digital platform (see Output 4.2 and Box 2 below) for
    - Competitive tendering.
    - Ongoing data collection from mini-grid pilot(s), including data-sharing requirements from mini-grid pilot(s), as well as digital hardware requirements
- Details of the project's plans for stakeholder engagement at the selected minigrid sites

- The project's approach to ensure minimal concessionality for the level of GEF INV support to the pilot(s). Application of this principle will involve an overall package of financial due diligence that will be performed during the tender process to select pilot sites/developers. This work will include assessment, supported by the project, of local stakeholders' willingness/ability to pay. One possible additional approach would be to require parity with a reference tariff set according to the most applicable methodology in P&EA's Minigrid Directive, to be demonstrated in bid documentation.
- Review of MoWE's modalities for transfer of GEF INV support to the pilot(s), ensuring they are aligned with UNDP's policies and financial rules.
- If a pilot includes GEF INV support for productive use, confirmation that the pilot takes a third party ownership model to productive use equipment
- Coordination and rationale on any associated project technical assistance activities which may benefit the minigrid pilot(s)

Pilots and the project's Environmental and Social Management Framework

Pilot minigrids funded by GEF INV are required to comply with all the relevant national standards of the country as well as UNDP standards on social and environmental safeguards, gender equity and stakeholder consultation. In support of this, an Environmental and Social Management Framework (ESMF), developed for the program, a Gender Action Plan and Stakeholder Engagement Plan accompany this Project Document. The ESMF is structured as a program-wide framework that provides guidance that is both generically applicable to all AMP country projects as well as country-specific. This guidance will have to be incorporated and considered in developing the environmental and social impact assessments and management plans for pilot minigrids.

A critical consideration under this ESMF is the need to ensure environmentally sound management of replaced equipment, including batteries, inverters, and solar panels, after their usage. The responsible handling of waste with recycling of batteries and other recyclable equipment, should be clearly documented, budgeted, and monitored in compliance with national and UNDP safeguards requirements, and coordinated with the recommendations and guidance prepared under Output 1.4.

Box 2. Digital data sharing for AMP-supported minigrids

Cooperative minigrid owners and their contracted operators receiving support from the project will be required to share minigrid performance data with the national project.

Specific terms and conditions for data-sharing and how best to operationalize the commitment and its adoption by the beneficiaries will be defined and agreed upon with minigrid operators during project implementation, including details of what data can and cannot be used, based on consultations with industry stakeholders and with support from the AMP Regional Project.

The specifications around the data generation by the demonstration pilots supported by the project will consult and follow guidance/standards provided by the AMP Regional Project. A standardized Quality Assurance and Monitoring Framework (QAMF) for application in all minigrid pilots supported under the project will be developed in year 1 of the regional project and disseminated to all national projects.

A digital platform will be developed by the project (under Component 4, Output 4.2) to serve different purposes including: (1) running digital tenders by which minigrid developers will be selected as beneficiaries to receive support under the project and (2) managing all technical and financial data related to minigrid sites. This platform will be directly coordinated with the existing procurement and tracking platform(s) of other donor-supported minigrid projects.

Through the implementation of this data management platform, cooperatives selected to implement minigrid pilots with support from the project will have access to a set of best-in-industry tools for analyzing minigrids (e.g. demand forecasting, system optimization, distribution network design, detailed financial modeling at the site and portfolio level). Similarly, as part of the roll-out of the data platform, minigrid developers (as well as key government and other stakeholders) will receive capacity-building and in-depth training to use analytical tools and data management technologies.

Remote monitoring and smart metering equipment will be used wherever technically feasible. Data that are not amenable to be collected by remote sensing will be collected either by the mini-grid operator or some alternative way to be defined by the project.

Data collected from the pilot(s) will be used at the project level to, among other purposes: (i) track the performance of the mini-grid systems in real-time; (ii) validate the underlying pilot(s) assumptions and business case; (iii) track performance enhancement in mini-grid capacity utilization; and (iv) generate insights and lessons learned to share with the AMP Regional Project. Also, data collected from pilot(s) will be shared with the AMP Regional Project for aggregating and analyzing data across all AMP national child projects. The regional project will use these data to: (i) generate insights and lessons learned; and (ii) inform the development of knowledge products, both to be disseminated across AMP

Process and principles for minigrid site selection

MoWE will provide a long-list (approximately 10) of suitable candidate sites for the AMP pilots. These sites will be subject to assessment and prioritized under the AMP, after which the number and project sites will be selected. All sites will have existing cooperatives engaged in various productive use activities that may be expanded under the AMP.

Site selection will be based on the following principles:

- Consistency with MoWE priorities and the NEP 2.0;
- Expected viability of cooperative delivery model supported by productive use for the minigrid in question;
- Capacity of the cooperative to effectively manage its responsibilities, with possible support from a qualified third-party installer and/or operator;
- Additionality relative to existing state and donor-supported initiatives.

A requirement for GEF-funded support of any greenfield pilot is that there must be a mechanism is established to ensure the minigrid is designed and operated for at least 20 years. It is required that a suitable governance structure, ownership structure, operations and maintenance model and equipment replacement plan be established that will ensure this is achieved.

In addition, the selection may also consider the current and future financial capacity of the cooperative, and its potential for expanding productive use. The site selection will take particular consideration to female-led cooperatives and the ability to engage women in the management and operations of the minigrid.

Once sites are selected, AMP will coordinate local stakeholder engagement, which will in turn shape the further design of the minigrid and the approach under the cooperative-led minigrid model.

Productive use investment support and linkages with minigrid financial viability

Productive use applications will be prioritized. The specific types of productive use to be supported by AMP will be determined based on site-specific assessment and local stakeholder engagement after AMP-supported minigrid sites are selected during the inception period. Supported productive use may include agro-processing activities such as mechanical threshing; flour and meal milling; coffee washing; mechanical drying; and cold storage. Productive use may also include other areas recently identified as priorities by MoWE, including irrigation, e-mobility, and electric cooking.

If certain types of productive use are justified as directly supportive of minigrid financial viability, AMP may provide investment support from GEF funds, as an overlay on its minigrid support. AMP will provide such productive use support only via a third-party ownership model, under which the cooperative minigrid owner purchases the productive use equipment, and then effectively leases it back to members, as part of the overall offer of energy services. This model ensures that productive use investment supports the financial viability of the cooperative-owned minigrid as directly as possible.

Output 2.1 will be achieved via the following activities.

- *Activity 2.1.1.* Selection of sites from MoWE-provided list of candidates, taking account of direct consultation with stakeholders at the respective sites (within first three months of Project Inception)

- *Activity 2.1.2.* Design of tender process for pilots using the digital platform developed under Output 4.2, including definition of required technical specifications for generation, storage, and distribution as well as the types of bidders being sought.

- *Activity 2.1.3.* Execution of tender, selection by MoWE and AMP-supported experts based on principles elaborated above, and contracting with selected beneficiaries (cooperative minigrid owners as well as contracted minigrid installers and operators), with provisions for delivery of payment upon fulfillment of minigrid commissioning and other key milestones

- *Activity 2.1.4.* Development of site-specific social and environmental safeguards plans

- *Activity 2.1.5*. Development and finalization of Minigrid Pilot Plan

- *Activity 2.1.6.* Installation and commissioning of minigrids

- *Activity 2.1.7* Monitoring, data collection and data aggregation from pilots via digital platform

Output 2.2. Technical assistance for productive use in association with AMP-supported minigrids. As noted above, AMP will provide support for productive use activity in close association with Output 2.1's direct support for cooperative minigrid deployment. The output will include targeted technical assistance to developers and end-users on effective productive use. Such assistance will cover access to finance; building a business case; and basic management approaches. The productive-use support activities will focus on yielding direct benefits to women.

This output will support the financial sustainability of minigrids by enhancing off-peak electricity demand, and associated sales. This output will also contribute to job creation and income earning activities associated with electricity services.

Output 2.2 will be achieved via the following activity.

- *Activity 2.2.1.* Delivery of training and business development support to cooperative minigrid owners and end-users, especially women, in business planning for productive use

Output 2.3. Training, higher education programs, and internships established for minigrid design, installation, operations, maintenance, and business models. AMP will work with the Addis Ababa Institute of Technology at Addis Ababa University to develop and deliver accredited courses for engineers on minigrid design, installation, operations, maintenance, and business modeling. These courses will include both classroom education and hands-on training, as well as visits to operating minigrid sites. Courses will be developed in the first year of the project and then delivered starting in the second year of the project.

Training will be coordinated with the Energy Transition Academy of Rocky Mountain Institute, which is a global initiative to build professional capacity on green energy in developing countries, including Ethiopia. This initiative will support peer-to-peer learning across countries, and will also support international study tours. Upon identification of suitable study tours and candidates for participation, AMP could provide some support for such study tours in conjunction with the other activities of Output 2.3.

In addition, AMP will arrange internships for highly qualified students and recent graduates with minigrid developers and operators (possibly including those involved with the AMP-supported minigrids of Output 2.1). These internships will provide benefits to the host companies by establishing a pipeline of talent, as well as to the interns by delivering valuable experience and opening a path to future employment.

Output 2.3 will be achieved via the following activities.

- *Activity 2.3.1.* Development of course curricula

- *Activity 2.3.2.* Delivery of courses at Addis Ababa Institute of Technology at Addis Ababa University

- *Activity 2.3.3.* Development and implementation of internship program, including application and selection process, as well as matching with host employers

Component 3. Scaled-up financing

Minigrid financing in Ethiopia is almost exclusively reliant on donor support, with minimal commercial financing mobilized to date. The Government intends to launch new mechanisms, such as the Minimum Subsidy Tender and a debt service reserve account, to help attract private sector financing to the minigrid subsector. Component 3 will develop financing instruments to help leverage and de-risk private sector financing for renewable minigrids. Based especially on the DREI analysis (Output 1.3) AMP will assist MoWE and REF in designing specific interventions to facilitate financing for private and cooperative minigrid developers as well as for productive use by off-taking entrepreneurs and cooperative members. Component 3 will also deliver technical training for commercial banks and microfinance institutions on minigrids and productive use. The outputs are as follows.

Output 3.1. Design support for financing and risk mitigation instruments, as well as development of operational guidance, provided for minigrid and productive use financing facility. AMP will work with the Rural Electrification Fund to design a facility and financial instruments to help attract financing for minigrid development and productive use.

Such instruments would be designed to target known barriers that companies and/or cooperatives pursuing minigrid development face when pursuing commercial loans and investment – especially low cash reserves and collateral, short credit histories, and uncertain revenues. These instruments could include debt and partial risk guarantees, and termination insurance. It may also pilot new innovative blended finance instruments such as results-based financing and minimum revenue guarantees that helps address cash flow risks.

This activity will be closely coordinated with the results of Output 2.1 to help shape design of the financing based on new insights gained about the cooperative business model, to boost the bankability of the enterprises and cooperatives that receive this financing.

Output 3.1 will be achieved via the following activities.

- *Activity 3.1.1.* Design of financial de-risking facility with the REF, using a variety of references, including the possibility of the DREI analysis (Output 1.3)

- *Activity 3.1.2.* Technical assistance to the REF in operationalizing the facility and monitoring performance of supported entities

Output 3.2. Domestic financial sector capacity-building on business and financing models for minigrids. Commercial banks and microfinance institutions in Ethiopia would tend to be wary of lending to minigrid

developers, given the early stage of market development and the immaturity of the companies, as well as the aforementioned problems of lack of cash, collateral, and credit history. AMP will deliver training to familiarize commercial banks and microfinance institutions with the technical aspects, business models, and financial profiles of renewable minigrids, with the goal of creating a more positive lending attitude among these institutions.

This output will be fulfilled via the following activities.

- *Activity 3.2.1.* Design of training, using a variety of references and sources, including the possibility of taking account of the market findings of the DREI analysis

- *Activity 3.2.2.* Delivery of training to domestic banks and MFIs on business and financing models for minigrids once annually starting in the second project year.

Component 4. Digital, Knowledge Management and Monitoring and Evaluation

Digital technologies and solutions are fundamental to scale up deployment of mini-grids. The emergence of minigrids as a viable solution to electrify remote and isolated communities relies strongly on digital technologies to remotely undertake real time monitoring and management of minigrid operations. Such technologies include pre-paid advanced metering infrastructure at the customer-end and the use of digital money to collect customers' payments.

Digital opportunity for minigrids. Figure 4 below shows different categories of digital solutions in the minigrid sector: (i) digital planning, (ii) digital operations, (iii) digital aggregation platforms, and (iv) digital payments. Digital technologies, whether used by policy makers, financiers or minigrid developers, contributes to reducing minigrid capital and operational costs by enhancing information and enabling scale. They also contribute to improved reliability of electricity services and revenue collection.

Data use opportunity for minigrids. Many opportunities around digitalization are related to leveraging the large amount of data generated by minigrid projects to surface actionable insights, learning and optimization to consolidate business models and technical solutions for scaling-up minigrids. For instance, the use of operational performance information from existing systems to forecast demand and design future minigrids can help avoid a very common pitfall of many minigrid systems, which are significantly oversized and hence not financially viable.

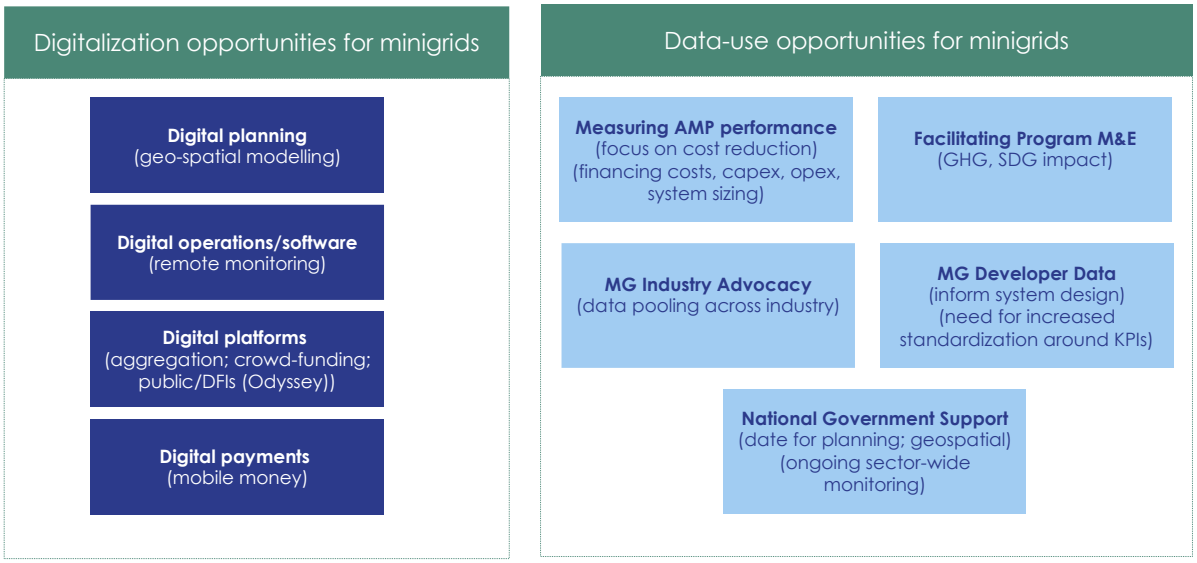


Figure 5 Digital and Data Opportunities for Minigrids in the AMP

The potential for using data and digital tools and solutions to add value at various stages of the minigrids value chain remains largely untapped. With enhanced capacity, **minigrid developers** could streamline their operations though smart metering and remote control of their assets and potentially reduce operations and maintenance costs by about 15% to 30% through reduced site visits, labor and component replacement costs. **Government stakeholders** could leverage digital solutions for energy sector planning, to streamline licensing, monitor quality of service and broadly improve sector oversight. However, data of sufficient quality is not always available for these purposes, and government stakeholders often lack the necessary technical capacity. And while data could be a tremendously valuable asset in the minigrid sector, this potential remains largely underutilized due to the lack of standardization and common data reporting protocols and the fact that this sector is still very nascent and remains relatively fragmented.

Opportunities across the Program, and with the AMP regional project. The AMP provides a unique opportunity to develop a single set of metrics and guidelines for data collection, and use them to collect data from minigrid investment pilots across different national projects which the AMP regional project can then aggregate, derive insights from, and systematically disseminate knowledge with participating AMP countries and with the broader minigrids sector in Africa. At the same time, the link between the regional project and the total of eighteen (18) national child projects provides a unique 'distribution channel' opportunity across Africa for AMP to mainstream the use of digital tools and solutions for minigrids cost-reduction and scale-up. Some of the key linkages with the Regional Project are described in Box 3 below.

In the context of AMP projects, a key mechanism for realizing these opportunities will be each project's use of a digital platform. Accordingly, a digital platform has been included in the AMP design for Ethiopia under Component 4 (Output 4.2) with close links to Components 1 and 2 and the AMP regional project.

Box 3. Linkages to the AMP Regional Project – Component 4 – Digital, KM and M&E

The project will receive support and guidance from, as well as participate in activities led by the AMP Regional Project in the following key areas of interface between the AMP regional project and the AMP national projects:

1. Digital.
    a. **Knowledge building/sharing.** The regional project will build and share knowledge with the project on the potential for use of digital tools and solutions, including leveraging minigrid projects' data to improve the commercial viability of renewable energy minigrids.
    b. **Data aggregation platform.** The AMP Regional Project will make a data management platform available to aggregate data from all national project pilots based on a common M&E framework to track Results Framework indicators as well as program objectives, SDG impacts and GHG emission reductions for all child projects.
2. Knowledge Management.
    a. **Information sharing**. The AMP regional project will support and facilitate knowledge management and information sharing between the regional child project and national child projects, among national child projects, and between the program and the larger minigrid community.
    b. **Insight Briefs.** National projects will gather data and audio-visual content (video footage, photos, etc.) highlighting national project activities which will be the subject of an 'insight brief' to be developed by the AMP Regional Project. The 'insight brief' will be disseminated by the regional project to regional stakeholders and published on the AMP website.
    c. **Communities of Practice**. One of the primary ways national project staff will interface with the regional project is via the 'Communities of Practice' (CoPs) and associated activities/platforms. While it is expected that many of the activities will be undertaken virtually (via internet-based platforms, webinars or digital platforms) it is also expected that the CoPs will include actual in-person workshops, meetings or training events that project staff will participate on. Knowledge tools and good practices around minigrid cost-reduction in a variety of regulatory environments, and research and development tools, such as policy packages, template tender documents, and guidelines on productive use program designs will be made available to national projects.
3. Monitoring and Evaluation (M&E).
    a. **Common M&E Framework.** The AMP Regional Project will develop, with inputs from national projects, a common M&E framework with SMART indicators to ensure that the program is able to track progress toward its overarching objective. This common M&E framework will include both the Results Framework indicators as well as additional Key Performance Indicators (KPIs) which will be adopted by the national projects to track progress toward project and program objectives (i.e., minigrid cost-reduction). The project will thereafter 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; and (b) Reporting on all additional Key Performance Indicators (KPIs) adopted by the project under the common M&E framework.
    b. **Operational support for national project M&E activities.** The AMP Regional Project will provide support to the project, through its PMU staff or by hiring or recommending subject matter experts, for the project to execute M&E activities such as the inception workshop, ongoing monitoring, and project evaluations. Further details provided in Section VI. MONITORING AND EVALUATION (M&E) PLAN.

Accordingly, the planned outputs for Component 4 are as follows.

Output 4.1: A Digital Strategy is developed and implemented, including linkages to and following guidance from the AMP Regional Project. Guided by the regional AMP, the AMP in Ethiopia will develop a digital and data strategy for enhancement of minigrid planning and productive use. This strategy will build upon the extensive existing data analysis, including the geospatial analysis that underlies NEP 2.0, as well as the digital support envisioned under ADELE and AMAP. This output will also include development of a digital strategy with regard to other specific AMP outputs in Ethiopia, including planning for grid arrival (see Output 1.2), decommissioning (Output 1.4) and especially management of pilots (Output 2.1) with an eye toward using digital technology to increase operational efficiencies, thereby reducing costs and adding value.

This output will be achieved via the following activity.

- *Activity 4.1.1.* Develop and implement a Project Digital Strategy. All national child projects will develop a Digital Strategy for the project in year 1 which will be implemented thereafter. The Project Digital Strategy will be updated on an annual basis to reflect learnings from project implementation, guidance received from the AMP Regional Project on digital tools and solutions, and insights gained from minigrid pilot(s) data. The development of the digital strategy for the project, including elaboration of digital applications across other AMP outputs, will take into account potential synergies with existing digital platforms for minigrids in Ethiopia.
- *Activity 4.1.2* Develop recommendations for a national-level digital strategy for minigrid development. Upon implementation of the Project Digital Strategy and based on lessons learned around opportunities to leverage digital tools and solutions for minigrid sector development, the project will develop a set of evidence-based recommendations for rolling out digital solutions for minigrids at the national level. These recommendations will be shared with key national stakeholders and provide the basis for developing a digital strategy for minigrid development post-project.

Output 4.2: Minigrids digital platform implemented to run tenders and manage data from pilots, and to support minigrids scale-up and cost-reduction. The project will set-up a digital platform to enable convening and capacity building for key stakeholders (public/private) and, as noted in Box 2 in the discussion of Output 2.1 above, to streamline procurement and management data from its supported pilot projects. Implementation of such platforms is a standard part of all AMP national projects to collect and manage technical and financial data related to minigrid pilot(s) across AMP participating countries based on the projects' Quality Assurance and Monitoring Framework (QAMF). The AMP Regional Project will have a web-based platform and make it available to aggregate data from all national project pilots.

A set of generic specifications for the digital platform was developed as initial guidance. Further guidance will be available from the AMP Regional Project at the time of procurement. These specifications are also essential to facilitate seamless data integration across the interfaces with other countries and the regional project. The generic specifications for this platform are presented in 5 below.

Table 5 Specifications for AMP Digital Platform for Pilots

Offering	Details
Digital convening platform for key stakeholders	• Set up of a country-specific, web-based platform to manage all technical and financial data related to minigrid sites at the site and portfolio level • Single site register of minigrid sites, with geospatial views and technical/financial benchmarks for site assessment • Set of best-in-industry tools for analyzing minigrids, including demand forecasting, minigrid system design and optimization, and financial modeling • Capacity-building and in-depth training of key government and other stakeholders to use analytical tools and data management technologies
National monitoring and evaluation platform (remote monitoring & analytics)	• Direct integration with smart meters and remote monitoring systems for live data feeds and monitoring (with options to address lack of remote monitoring systems or other restrictions) • Big data analytics and customized reporting to calculate and report on standardized metrics for pilot performance, based on project QAMF • Quality assurance of data quality, accuracy, relevance, consistency • Interactive tools to analyze data, filter, and view at varying levels of granularity • All pilot-specific data can be rolled up into national view, and all country-specific data can be rolled-up into regional view
Financing platform for running tenders to select minigrid pilot beneficiaries	• Complete end-to-end management of e-tenders for mini-grids customized to specific project/pilot needs (e.g. customized technology solutions, customized workflow, customized KPIs for pilot monitoring) • Automated proposal analysis for quantitative proposal components • Remote verification of connections through smart meter integrations • Automated M&E analytics for all RBF program indicators (connections deployed, amounts paid, gender/environmental impact metrics, etc.)

Development of such digital platforms for minigrid project tenders, tracking, evaluation, management, and reporting is already foreseen by other agencies and projects (especially ADELE). Recognizing the importance of avoiding creation of redundant or mutually inconsistent digital platforms, AMP will carry out this output in close coordination with the existing initiatives.

This output will be fulfilled via the following activities.

- *Activity 4.2.1.* Assessment of existing digital platforms for minigrid management and determination whether AMP's platform can be built as an add-on to these platforms.

- *Activity 4.2.2.* Development of technical specifications for the AMP digital platform with support from the AMP Regional Project.

- *Activity 4.2.3.* Procurement of consultant services and execution of the platform as needed (within the first half of the first year of the project)

- *Activity 4.2.4.* Capacity building of key stakeholders (including the cooperatives participating in minigrid pilots, their contracted minigrid operators, and oversight agencies) on the effective use of the digital platform

- *Activity 4.2.5*. Linkages to digital support activity of the AMP regional project**,** including support from the regional project to the national project (for example on digital platform TORs) as well as feeding of national data to the regional project digital platform.

Output 4.3: A Quality Assurance and Monitoring Framework (QAMF)[8] 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. The project will develop a detailed methodology and procedural framework for tracking the energy-related, financial (from the point of view of both minigrids and end-users), job-related, and GHG impacts of the pilot activities supported by AMP under Outputs 2.1 and 2.2. These results will be guided by inputs from the AMP regional project, but will be specific to Ethiopia, with linkages to extensive existing quality-assurance, monitoring, and impact evaluation that already is being conducted as baseline activity under other donor funding.

Output 4.3 will be achieved via the following activities.

- *Activity 4.3.1.* Development of methodology and procedural framework for quality assurance and monitoring. The project will provide inputs and feedback to the regional project on the development of a standardized Quality Assurance and Monitoring Framework (QAMF) for application in all minigrid pilots supported under AMP national projects (also referred to in this document as a common M&E Framework). The QAMF will be developed in year 1 of the regional project and disseminated to all national project staff. It is expected that national project staff will provide both inputs and feedback on the development of this framework as well as on how best to operationalize its adoption by the minigrid operators receiving support from the project.

- *Activity 4.3.2.* Operationalization of this methodology for the AMP in Ethiopia, contributing to the reporting of impacts under Output 4.4

Output 4.4: M&E and Reporting, including (i) Conducting inception workshop and preparing report, (ii) Ongoing M&E, (iii) Midterm Evaluation and (iv) Terminal Evaluation. In conjunction with quality control and monitoring to be carried out for other components and activities, this output will involve the execution of all project monitoring, the execution of the Inception Workshop and Inception Report, and formal evaluation efforts (including the Midterm Review and Terminal Evaluation) as set forth in the Monitoring and Evaluation Plan.

Please see the Monitoring and Evaluation Plan for full elaboration of activities planned in this area.

Output 4.5: Engage with regional project, including, but not limited to, via (i) participating in Communities of Practice and (ii) capturing and sharing lessons learnt. The AMP in Ethiopia, in coordination with the region-wide AMP umbrella program, will support the exchange of information, both from Ethiopia and into Ethiopia, on best practices and lessons learned from minigrid development, implementation, regulations, business model development, financing, and donor-funded technical and investment support. The vehicle for such exchange will be Communities of Practice organized by the

[8] Building on the minigrid Quality Assurance Framework (QAF), a set of technical and financial performance monitoring indicators, developed by NREL, SEFA and others, as well as the considerable data gathering, pooling and analysis work ongoing by partners such as RMI, SE4All and AMDA.

regional AMP. Under this output, AMP will also compile and disseminate best practices, lessons learned, and impacts from its own work. This output will include a written report to be shared with the regional AMP, as well as contribution to the websites of MoWE and UNDP, and a conference in the final year of the project.

This output will be fulfilled via the following activities.

- *Activity 4.5.1.* Organization of participation by Ethiopian stakeholders in Communities of Practice organized by the regional AMP

- *Activity 4.5.2.* Compilation of a written report in the final project year on best practices, lessons learned and impact from the AMP

- *Activity 4.5.3.* Execution of a conference in Addis Ababa in the final year of the project to share results and lessons learned

Partnerships

As noted in Section II (Development Challenge), in 2021 the World Bank has approved the ADELE project comprising $240 million in financing for new solar-powered minigrids in high-priority areas identified by the geospatial mapping, and $25 million in technical assistance for off-grid electrification. ADELE will support about 300 new minigrids providing about 240,000 new connections under both EEU-owned and private-led business models.

The AMP is closely coordinated with the AfDB support for minigrids in Ethiopia. Support for minigrid developers and technical assistance will be provided under SEFA's pan-African Africa Mini-Grid Market Acceleration Programme (AMAP). AMAP has four focal areas: i) Opening new markets (designing bankable, national mini-grid acceleration programmes to attract public and private investment, including creation of digital platforms); ii) catalytic support (developing new financial de-risking instruments for mini-grid investments and providing technical assistance to unlock private investment); iii) strengthening the ecosystem (expanding knowledge sharing, innovation capacity, and technical skills across a broad range of industry actors); and iv) programme management.

The German development agency GIZ has recently supported the pilot deployment of 5 hydroelectric microgrids, and in conjunction with the European Union, is providing financing support for 10 pilot solar minigrids for agricultural cooperatives. Other agencies, including the U.S. Agency for International Development and the Rockefeller Foundation, have also been issuing substantial support to MoWE for planning, policy development, and business model analysis. RMI, contributed to the AMP project preparation, especially at the regional umbrella level, and provided strategic guidance and training to MoWE on minigrids. They are planning to continue to take an active role in defining strategy and interventions in support of agro-industrial productive use.

The RMI has been working in the energy sector in Ethiopia for more than three years. RMI has provided training to EEU staff on minigrids and more recently, has been MoWE's leading partner in analyzing opportunities and designing support for productive use, as reflected in RMI's March 2021 report *Productive Uses of Energy in Ethiopia.*[9] Now, as noted above (see Output 1.2), RMI is launching new work on the development and piloting of investible business models for transitional minigrids.

[9] https://rmi.org/insight/productive-uses-of-energy-in-ethiopia/

The AMP will be implemented by MoWE as the owner and National Implementing Partner of the Project, in close coordination with the P&EA, the EEU, and the FCA. It is envisioned that the project will have a **Project Implementation Unit** (PIU) within MoWE, as a dedicated unit is necessary to administer the project, ensure proper and timely reporting, handle project-specific financial management, and oversee fulfilment of the project's objective and targets of the Project Results Framework. At the same time, to avoid duplication and coordinate with existing structures within MoWE, the PIU will coordinate all programmatic activity with the Directorate of Electrification, as well as the Directorate of Energy Policy and Directorate of Women, Children, and Youth where relevant.

It is also foreseen that MoWE's **Rural Electrification Fund (REF)** could also be a key partner, under the leadership of MoWE as Executing Agency, in achieving project's outcomes. At the time of writing, the REF is somewhat embryonic, but the project is designed so that it may be strenghtened before it is deployed to support project's activities and outcomes.

The Addis Ababa Institute of Technology at the Addis Ababa University will be a key partner of AMP in the development and delivery of training to aspiring minigrid developers and operators. The Rural Electrification Fund, an agency of MoWE, will be AMP's main partner in development and delivery of subsidized financing for productive use equipment.

Local partnerships with specific agricultural cooperatives and other beneficiaries in minigrid development and productive use have not yet been confirmed during the project preparatory period, but will be defined during the first year of the implementation period.

Risks

The project has identified and rated risks that could affect the AMP project during implementation and beyond. Table 6 summarizes risks and planned risk management responses. This table is also presented in Annex 7 (UNDP Risk Register).

Table 6 Project Risks

#	Description	Risk Category	Impact & Probability	Risk Treatment / Management Measures	Risk Owner
Strategic risks					
1	Cooperative minigrid delivery models with associated productive use development prove not to be cost-effective and scalable because of prevailing market conditions outside the control of the project, including currency controls (access to foreign currencies) as well as foreign exchange (FX) volatility.	Strategic	Impact (I) = 4 Likelihood (L) = 3 Risk rating = Moderate	AMP will consider a wide range of possible variants of cooperative delivery models in Outputs 1.1 and 2.1, as well as a full range of productive uses in Output 2.2. With regard to FX risks, the DREI analysis will analyse these FX issues, and together with the design process for the risk mitigation instruments	MoWE and UNDP

#	Description	Risk Category	Impact & Probability	Risk Treatment / Management Measures	Risk Owner
				(under component 3), explore possible mechanisms to mitigate these risks.	
2	Even with support on technical and contractual provisions and consultation on grid arrival (Output 1.2), transitional minigrids prove not to be viable and too administratively complex to be developed in a timely and scaled manner with private-sector or cooperative involvement	Strategic	I = 4 L = 4 Moderate	If transitional minigrids prove too problematic for alternative delivery models with private sector involvement, AMP will shift the focus to assisting the EEU and MoWE in broader strategic planning on transitional minigrids within the context of NEP 2.0 and public sector delivery models, and pilot investments where the potential for viable investments is present.	MoWE and UNDP
3	Climate change exacerbates the unpredictability, frequency, and severity of droughts, floods, and other hydrometeorological events, thus reducing viability of agro-industrial productive use	Strategic (See also the climate risk in the Social and Environmental risk section below)	I = 2 L = 3 Moderate	AMP activity will take account of climate risks in its business forecasting as well as its own implementation plans. It is expected that value chain enhancement from productive use may well increase climate resilience because economic returns will become less exclusively dependent on raw agricultural output. Productive use focusing on e-mobility and electric cooking will further hedge against risks of agricultural losses.	MoWE and UNDP
4	Interest in training at Addis Ababa Institute of Technology on minigrid development and operations (Output 2.3) is low because students see greater interest or stronger job prospects in other sectors	Strategic	I = 3 L = 2 Moderate	AMP will seek close coordination with ADELE and AMAP to help ensure that job opportunities for domestic minigrid professionals are transparently available.	MoWE, UNDP, and AAiT
5	Demand for new financial de-risking instruments is low	Strategic	I = 2	The recommendations of the DREI analysis (Output	MoWE, Rural Electrification

#	Description	Risk Category	Impact & Probability	Risk Treatment / Management Measures	Risk Owner
	because of the low volume of cooperative and private-sector minigrid development and the high availability of baseline concessional financing		L = 3 Low	1.3) will focus on de-risking measures with the most potential impact relative to market demand and the existing financial ecosystem for minigrids	Fund, DREI consultant, and UNDP
6	The AMP's development of a digital platform creates redundancy or conflict with regard to existing, more widely used digital platforms for minigrid tenders and data management, developed by other donor-funded projects	Strategic	I = 2 L = 1 Low	AMP will seek close coordination with the EEU and other donor-funded projects to ensure that work on digital platforms is fully harmonized.	MoWE, EEU, and UNDP, in coordination with donor-funded projects, especially ADELE and AMAP
Political risk					
7	Political uncertainty persists into the project period, with the possibility of extended disruption to project activity	Political	I = 4 L = 4 Substantial	The project will closely monitor the unfolding situation throughout the country and will adjust its project plans accordingly. If conditions make the fulfillment of project activity unrealistic or impossible, then the project will apply adaptive management to reallocate project resources and reframe activities.	MoWE, UNDP, and other members of the Project Board
Operational risks					
8	The COVID-19 pandemic and its after-effects persist into the project period. The continuation of the pandemic could lead to several possible effects: a. Lockdowns and other restrictions on movement and business activity b. National and global disruption of supply chains, leading to higher costs and delays	Operational	I = 4 L = 4 Substantial	The project will take account of COVID-19 risks and contingencies in the planning of all its activities, especially the scoping, detailed budgeting, and business plan development for pilots of Output 2.1. Activities that may be delayed as a result of any remaining or new COVID-related restrictions will be identified at project	MoWE, UNDP, Addis Ababa Institute of Technology, and local partners

#	Description	Risk Category	Impact & Probability	Risk Treatment / Management Measures	Risk Owner
	c. Reduced ability of cooperatives and developers to maintain normal operations because of new financial stresses d. Reduced ability of end-users to pay for minigrid electricity services			inception and launched as early as possible. The project will observe all applicable public health orders of the government. Where COVID-19 risk is high and when lockdowns are applied, the project will apply virtual stakeholder meetings and trainings.	
9	The existing staff capacity of MoWE and other agencies is strained because of high workloads from other donor-funded initiatives	Operational	I = 4 L = 4 Substantial	The management structure of the project has been developed in recognition of this risk. The Project Manager, Administrative/Financial Manager, and hired consultants will help ensure that the project can operate normally even given the competing time demands of MoWE personnel. Output 1.5 (capacity-building via the MoWE Innovation Center) will also help manage this risk.	MoWE with UNDP support
10	Procurement delays slow the fulfillment of key outputs and achievement of outcomes	Operational	I = 3 L = 3 Moderate	The MoWE has requested RMI to take the role as the Responsible Party reducing the need for consultants. Consultancy services can be contracted in larger and fewer contracts reducing the burden of contract management. Contracts for minigrid deployment will be turnkey reducing the burden on MoWE and accounting for the small size. The contracting will also account for UNDP's	MoWE, UNDP, and contracted experts

#	Description	Risk Category	Impact & Probability	Risk Treatment / Management Measures	Risk Owner
				experience and lessons learnt in Ethiopia.	
11	The low availability of mobile connectivity in remote areas of Ethiopia complicates the implementation of digital platforms for minigrid monitoring and performance evaluation	Operational	I = 3 L = 3 Moderate	AMP will closely coordinate its activities in Outputs 4.1 and 4.2 with the relevant work of ADELE and AMAP on digital platforms. Mobile connectivity is a criteria for site selection to ensure that cost effectiveness can be achieved and knowledge can be disseminated.	MoWE, UNDP, with support from other donor agencies
Social and environmental risks (Moderate and Substantial risks from the Social and Environmental Screening – for full elaboration of all these risks, as well as risks rated Low, see Annex 6)					
12	(SESP Risk 1) Risk on lack of capacities of duty-bearers and rights-holders.	Social and Environmental	I = 4 L = 2 Moderate	The project will build significant capacity of stakeholders involved in minigrid development. The Stakeholder Engagement Plan outlines the details for managing risks.	MoWE with support from UNDP
13	(SESP Risk 2) Risk of project activities not being safeguards responsive during the project life cycle.	Social and Environmental	I = 3 L = 3 Moderate	Project activities will be implemented according to the AMP ESMF, and be subject to reviews during implementation	MoWE with support from UNDP
14	(SESP Risk 3) Risk of exclusion of affected stakeholders due to their vulnerability and/or potential concerns about the project. Stakeholders may be excluded at the participatory/beneficial activities of the project, and/or retaliation/reprisals may occur based on their grievances and objections.	Social and Environmental	I = 3 L = 3 Moderate	The AMP Stakeholder Engagement Plan and ESMF manage this risk. A project-level Grievance Redress Mechanism will be put in place.	MoWE with support from UNDP
15	(SESP Risk 4)	Social and Environmental	I = 3 L = 3	Female/led Cooperatives are part of the site selection criteria.	MoWE with support from UNDP

#	Description	Risk Category	Impact & Probability	Risk Treatment / Management Measures	Risk Owner
	Risk of excluding women at the participatory/beneficial activities of the project.		Moderate	Measures have been established by the Gender Analysis and Action Plan to manage and reduce risks identified for women. See ESMF for details of assessment and management of this risk.	
16	(SESP Risk 5) Risk of damage to biodiversity and natural resources due to land changes and new productive uses of the energy.	Social and Environmental	I = 3 L = 2 Moderate	Project sites will be selected in accordance with the ESMF and national requirements. Construction activities are expected to minimal. Construction and installation contracts will reflect the ESMF requirements and be closely monitored during implementation.	MoWE with support from UNDP
17	(SESP Risk 8) Risk of climate change events, such weather-related disasters.	Social and Environmental	I =3 L = 3 Moderate	Project site selection will account for climate risk and the performance specifications. These will be reflected in contracts will ensure that the projects withstand variability in climate such as temperature. Certain increased losses can be expected if the temperature rises above established temperatures.	MoWE with support from UNDP
18	(SESP Risk 15) Risk of physical displacement and loss of livelihood due to eviction from land.	Social and Environmental	I =3 L = 2 Moderate	Project sites will be selected during the inception phase of the project. Potential sites will require field visits and an assessment of the social and environmental impacts in accordance with the ESMF.	MoWE with support from UNDP

#	Description	Risk Category	Impact & Probability	Risk Treatment / Management Measures	Risk Owner
				Given the small size and limited land requirements the impacts are not expected to cause any displacements or economic loss.	
19	(SESP Risk 16) Risk of economic displacement due to loss of income from fuel selling.	Social and Environmental	I = 4 L= 2 Moderate	See ESMF details of assessment and management of this risk. Preference will be given to green field sites with no existing electricity services.	MoWE with support from UNDP
20	(SESP Risk 18) Risk to indigenous peoples. Indigenous Peoples may be excluded at the participatory/beneficial activities of the project.	Social and Environmental	I =3 L = 3 Moderate	See ESMF for details of assessment and management of this risk.	MoWE with support from UNDP

Stakeholder engagement and south-south cooperation: The AMP in Ethiopia has been developed based on extensive input from key stakeholders, including MoWE and its respective directorates for policy, electrification and women, the EEU and the P&EA; Addis Ababa Institute of Technology; Ethiopian Women in Energy (EWiEn), a leading NGO promoting engagement, participation, and leadership by women in energy in Ethiopia; and a broad array of international institutions.

AMP's scoping of the broad needs of local beneficiaries (communities and constituencies engaged in minigrid development and productive use) reflects inputs from national experts and donor-funded implementers of projects that target these beneficiaries, as well as from MoWE itself. Specific local beneficiaries have not yet been identified but will be extensively engaged as the project moves into implementation. At project inception, when it is clearer what minigrids will be ready to serve what communities on what timetables, AMP will aim to define its geographic focus areas and the specific minigrid-served communities where it will work for the first two project years. AMP will then work with MoWE, the FCA, and donor agencies to reach out to specific potential beneficiaries involved with both minigrid development/operation and productive use, to receive the inputs of these beneficiaries regarding needs and detailed project design.

South-south cooperation is a defining facet of the AMP, including the national project in Ethiopia. Especially via Outputs 1.3 (DREI analysis and associated dissemination) and 4.5 (communities of practice), the AMP will implement such cooperation in conjunction with the regional umbrella project. Findings and best practices will be compiled and shared both from Ethiopia to other African countries, and from those

other countries back into Ethiopia. This information flow will include both publications and online convenings. The AMP in Ethiopia also has planned for an international conference at the end of the implementation period to share project results and lessons learned.

Gender Equality and Women's Empowerment: The prospect of scaled rural electrification via solar minigrids in Ethiopia presents notable opportunities to engage women in expanded community roles and economic activity in both minigrids and productive use. The AMP will specifically seek to design its pilot projects, associated technical assistance for productive use, training, and financial facility with an eye toward integrating the inputs of women stakeholders and engaging women as partners and beneficiaries at the national and local level. See the Gender Analysis and Action Plan (Annex 11) as well as the Project Results Framework for full details of the project's plans and targets.

Innovativeness, Sustainability and Potential for Scaling Up: Renewable minigrids, especially those to be developed via non-public delivery models, are new in Ethiopia. Productive use associated with minigrids is likewise new in the country. MoWE and its development partners have conducted extensive analysis leading to the NEP 2.0, the Minigrid Directive, and the varied delivery models embodied therein. These development partners, especially the World Bank but also AfDB, GiZ, RMI, the Rockefeller Foundation, are supporting ambitious programs encompassing the introduction of innovative and new business models for minigrid deployment and productive use.

The AMP will be implemented within this well-developed baseline context to fill gaps and to deliver other new solutions for Ethiopia in policy, institutional capacity-building, productive use business development, engagement of women entrepreneurs, design and implementation of financing, digital platforms and knowledge-sharing.

In Ethiopia as in the other AMP countries, sustainability and scale-up are at the core of the underlying strategic logic, with the objective to create enabling conditions and to remove barriers so that minigrids can achieve financial viability, and thereby unleash the power of market forces to promote scale-up. AMP support for policy, planning, and capacity-building in Component 1 will help to create enabling conditions. The support for cooperative minigrid development under Output 2.1 and training to minigrid developers in Output 2.3 will also create the human capacity and entrepreneurial aspiration that have heretofore been absent in Ethiopia. Component 3 will support both of these constituencies with new financing options. Component 4 will lead to efficiencies in project delivery via digital solutions, as well as documentation and dissemination to broaden the national knowledge base and raise confidence in minigrids as investments as well as technical solutions.

The AMP will improve the prospects for the minigrid sector to grow in the future – going beyond donor support, state ownership, and EPC implementation by international firms. Instead, the sector will progress toward more self-sustaining models of minigrid development closely integrated with productive use. It is expected that minigrids will increasingly attract private sector finance.

V. PROJECT RESULTS FRAMEWORK

This project will contribute to the following Sustainable Development Goal (s):

a) SDG7: Ensure access to affordable, reliable, sustainable and modern energy for all (SDG 7.1 By 2030, ensure universal access to affordable, reliable and modern energy services; SDG 7.2 By 2030, increase substantially the share of renewable energy in the global energy mix)
b) SDG13: Take urgent action to combat climate change and its impacts;
c) SDG5: Achieve gender equality and empower all women and girls

This project will contribute to the following country outcome (UN Country Programme Document 2020-25):

UNSCDF Outcome 3: By 2025, all people in Ethiopia live in a society resilient to environmental risks and adapted to climate change.

Output 3.3: Solutions adopted to increase access to clean, affordable and sustainable energy

Output 3.4: Action on climate change adaptation and mitigation scaled-up, funded and implemented across sectors.

	Objective and Outcome Indicators (no more than a total of 20 indicators)	**Baseline**[1] Must be determined during PPG phase	**Midterm Target**[2] Expected level of progress before MTR process starts	**End of Project Target** Expected level when terminal evaluation undertaken
Project Objective: **Supporting access to clean energy by increasing the financial viability, and promoting scaled-up commercial investment, in renewable minigrids in Ethiopia with a focus on cost-reduction levers and innovative business models.**	*Mandatory GEF Core Indicators:* ***Indicator 1:* Greenhouse gas emissions mitigated (metric tons of carbon dioxide equivalent)** (Units of measure: metric tons of CO2e)	Zero, since the project has not yet started	Zero, since the project pilot(s) have not yet been commissioned	16,836 (direct) 4,905,000 (indirect) [3]
	Mandatory GEF Core Indicators: ***Indicator 2:* Number of direct beneficiaries benefitting from energy access via minigrids, disaggregated by gender and customer segment (residential, social, commercial/productive use), as co-benefit of GEF investment** [4] (Units of measure: number of people, number of connections)	Zero, since the project has not yet started	Zero, since the project pilot(s) have not yet been commissioned	31,625 people (of which 50% women) -------- 30,488 people (residential) 202 people (social) 935 people (commercial/PUE) ***31,625 people (total)*** -------- 6,098 connections (residential) 50 connections (social)

				312 connections (commercial/PUE)) ***6,460 connections (total)***
	Indicator 3: Increase in installed solar PV capacity (MW) and battery storage (MWh)	Zero, since the project has not yet started	Zero, since the project pilot(s) have not yet been commissioned	0.624 (solar PV) 1.523 (storage)
	Indicator 4: Number of direct [and indirect] primary jobs created in the MG sector, disaggregated by gender, for mini-grid development, operation and productive use.	0 (direct jobs in minigrid development) 0 (direct jobs in productive use supported by new AMP-supported cooperative minigrids)	30, including 10 women 50, including 25 women	120, including 50 women 150, including 75 women
Project Component 1	**Policy and Regulations**			
Outcome[5] 1 **Stakeholder ownership in a national minigrid delivery model is advanced, and appropriate policies and regulations are adopted to facilitate investment in renewable minigrids.**	*Indicator 5:* A minigrid delivery model to enable minigrid development is endorsed/adopted by the national government through a consultative process involving key stakeholders (e.g. relevant ministries, local authorities, rural populations, private sector, media, etc.) Binary indicator (1/0)	Zero	Multi-stakeholder, national dialogue platform on cooperative minigrid delivery models established and active.	At least one cooperative minigrid delivery model is identified and endorsed by the government through the work of the multi-stakeholder platform and dialogue.
	Indicator 6: Number of policy de-risking instruments for minigrid investments identified and adopted by the national government (Units of measure: Absolute number of policy derisking instruments)	No de-risking instruments for cooperative minigrids	At least one policy de-risking instrument identified and adopted	At least two policy de-risking instruments identified and adopted
Outputs to achieve Outcome 1	*Output 1.1. Support for national dialogue, associated capacity enhancement and arrangements for implementation of cooperative minigrid delivery model(s)* *Output 1.2. Establishment of regulations, technical and contract provisions, and consultation with developers and financiers on grid arrival arrangements* *Output 1.3. Execution of the De-risking Renewable Energy Investment (DREI) analysis for solar PV minigrids* *Output 1.4. Development of decommissioning strategy and guidelines on waste management for minigrid components.*			

	Output 1.5. Capacity-building for MoWE and its sectoral institutions via the MoWE Innovation Center (MIC).			
Project Component 2	**Business Model Innovation with Private Sector**			
Outcome 2 **Innovative business models based on cost reduction operationalized, with strengthened private sector participation in renewable minigrid development**	***Indicator 7:*** **Minigrid pilots implemented that demonstrate a delivery model, cost-reduction measure(s) and/or productive use of electricity** (binary (1/0))	Zero	The project's detailed design plan (the 'Minigrid Pilot Plan') for advancing the minigrid pilots is developed, and cleared by UNDP. (1) Any project tendering process, as applicable, for minigrid pilots is launched. (1)	100% of the planned minigrid pilots, as identified in the project's Minigrid Pilot Plan, are commissioned. (1)
	Indicator 8: **Capacity of private sector minigrid developers and/or operators is enhanced to participate in sector-wide tendering processes led by MoWE and the EEU to develop and/or operate minigrids** (binary (1/0))	Zero (no formal training for minigrid developers and operators in Ethiopia, within or outside AMP)	Planned capacity building activities for year 1 and 2 are implemented. (1) The capacity of targeted recipients is assessed by survey towards the end of year 2. On a scale of 1 to 5, an average score of at least 2 is achieved. - 1 represents a low level of capacity - 5 represents a strong capacity to understand relevant issues and apply knowledge and skills to find effective solutions. (1)	Planned capacity building activities for year 3 and 4 are implemented. (1) The capacity of targeted recipients is assessed by survey towards the end of the project. On a scale of 1 to 5, an average score of at least 4 is achieved. - 1 represents a low level of capacity - 5 represents a strong capacity to understand relevant issues and apply knowledge and skills to find effective solutions. (1)
Outputs to achieve Outcome 2	*Output 2.1. Implementation of pilot minigrids under cooperative delivery models.* *Output 2.2. Technical assistance for productive use in association with AMP-supported minigrids.* *Output 2.3. Training, higher education programs, and internships established for minigrid design, installation, operations, maintenance, and business models*.			
Project Component 3	**Scaled-up Financing**			

Outcome 3 **Financial sector actors are ready to invest in a pipeline of renewable minigrids and concessional financial mechanisms are in place to incentivize scaled-up investment.**	***Indicator 9*: Capacity of financial institutions is enhanced through training, knowledge sharing, and/or awareness raising events aimed at increasing the financial sector's capacity to evaluate investments in minigrids.** (binary (1/0))	Zero	Planned capacity building activities for year 1 and 2 are implemented. (1) The capacity of targeted recipients is assessed by survey towards the end of year 2. On a scale of 1 to 5, an average score of at least 2 is achieved. - 1 represents a low level of capacity - 5 represents a strong capacity to understand relevant issues and apply knowledge and skills to find effective solutions. (1)	Planned capacity building activities for year 3 and 4 are implemented. (1) The capacity of targeted recipients is assessed by survey towards the end of the project. On a scale of 1 to 5, an average score of at least 4 is achieved. - 1 represents a low level of capacity - 5 represents a strong capacity to understand relevant issues and apply knowledge and skills to find effective solutions. (1)
	***Indicator 10:* Number of new government- or impact investor-supported financing mechanisms offering concessional finance for renewable minigrids.** (binary (1/0))	Zero (through mechanism or facility supported by AMP)	At least one new complementary funding instrument is designed by AMP and operational. (1)	At least one new complementary funding instrument is designed by AMP and operational. (1) At least one renewable mini-grid project has managed to obtain concessional finance (i.e. sign the relevant agreements) through the designed complementary funding instrument. (1)
Outputs to achieve Outcome 3	*Output 3.1. Design support for financing and risk mitigation instruments, as well as development of operational guidance, provided for minigrid and productive use financing facility.* *Output 3.2. Domestic financial sector capacity-building on business and financing models for minigrids*			
Project Component 4	**Digital, Knowledge Management and Monitoring and Evaluation**			
Outcome 4 **Data and digitalization are mainstreamed, across stakeholders, into local minigrid**	**Indicator 11: A project digital strategy is prepared and implemented by the PMU to contribute to project implementation and local minigrid market** development. (binary (1/0))	Zero	The project digital strategy is developed and being implemented. (1)	The project digital strategy is implemented. (1) Recommendations for rolling out digital solutions for minigrids at

market development. Increased knowledge, awareness and network opportunities in the minigrid market and among stakeholders, including benefitting from linkages to international good practice				national level have been shared with key national stakeholders. (1)
	Indicator 12: Minigrid pilots sharing data on minigrid performance with the regional project and other stakeholders following best practices and guidance received from the AMP Regional Project. (binary (1/0))	Zero	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)	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 [at least on a quarterly basis] using the project's 'digital & data management platform'. (1)
Outputs to achieve Outcome 4	*Output 4.1: A Digital Strategy is developed and implemented, including linkages to and following guidance from the AMP Regional Project.* *Output 4.2 - Minigrids digital platform implemented to run tenders and manage data from pilots, and to support minigrids scale-up and cost-reduction.* *Output 4.3: 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 4.4: M&E and Reporting, including (i) Conducting inception workshop and preparing report, (ii) Ongoing M&E, (iii) Midterm Evaluation and (iv) Terminal Evaluation.* *Output 4.5: Engage with regional project, including, but not limited to, via (i) participating in Communities of Practice and (ii) capturing and sharing lessons learnt*			

VI. MONITORING AND EVALUATION (M&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 5** 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[10]. 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.

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. Finalize the TOR of the Project Board.
h. Formally launch the Project

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

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 Core indicators included as Annex 15 will be used to monitor global environmental benefits and will be updated for reporting to the GEF prior to MTR and TE. Note that the project team is responsible for updating the indicator status. The updated monitoring data should be shared with MTR/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.

Independent Midterm Review (MTR): The Terms of Reference, the review process and the final MTR report will follow the standard templates and guidance for GEF-financed projects available on the UNDP Evaluation Resource Center (ERC).

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 under review.

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

The final MTR report and MTR TOR will be publicly available in English and will be posted on the UNDP ERC by 01 September 2023. A management response to MTR recommendations will be posted in the ERC within six weeks of the MTR report's completion.

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 August 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[11] and the GEF policy on public involvement[12].

Linkages with the Regional Project: the Ethiopia project's M&E Activities will also establish linkages with the AMP Regional Project, as described in Box 4 below.

Box 4 Linkages to the AMP Regional Project - M&E

[11] See http://www.undp.org/content/undp/en/home/operations/transparency/information_disclosurepolicy/
[12] See https://www.thegef.org/gef/policies_guidelines

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

4. 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.

Table 7 Monitoring and Evaluation Plan and Budget

GEF M&E requirements	Indicative costs (US$)	Time frame
Inception Workshop	None	Within 60 days of CEO endorsement of this project.
Inception Report	None	Within 90 days of CEO endorsement of this project.
M&E of GEF core indicators and project results framework	15,000	Annually and at mid-point and closure.
GEF Project Implementation Report (PIR)	None	Annually typically between June-August
Monitoring of SES, gender action plan, and stakeholder engagement plan (project risks)	None	On-going.
Supervision missions	None	Annually
Independent Midterm Review (MTR)	60,000	01 September 2023
Independent Terminal Evaluation (TE)	60,000	01 August 2025
TOTAL indicative COST (4.66% of GEF grant)	135,000	

VII. GOVERNANCE AND MANAGEMENT ARRANGEMENTS

Roles and responsibilities of the project's governance mechanism

Implementing Partner: The Implementing Partner for this project is the Ministry of Water and Energy (MoWE). The Implementing Partner 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 Implementing Partner 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 Implementing Partner 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.

Responsible Party: MoWE has recently requested RMI to undertake the role as the Responsible Party to support implementation of certain activities. The scope of works for RMI is expected to be agreed prior to commencement of implementation of the AMP.

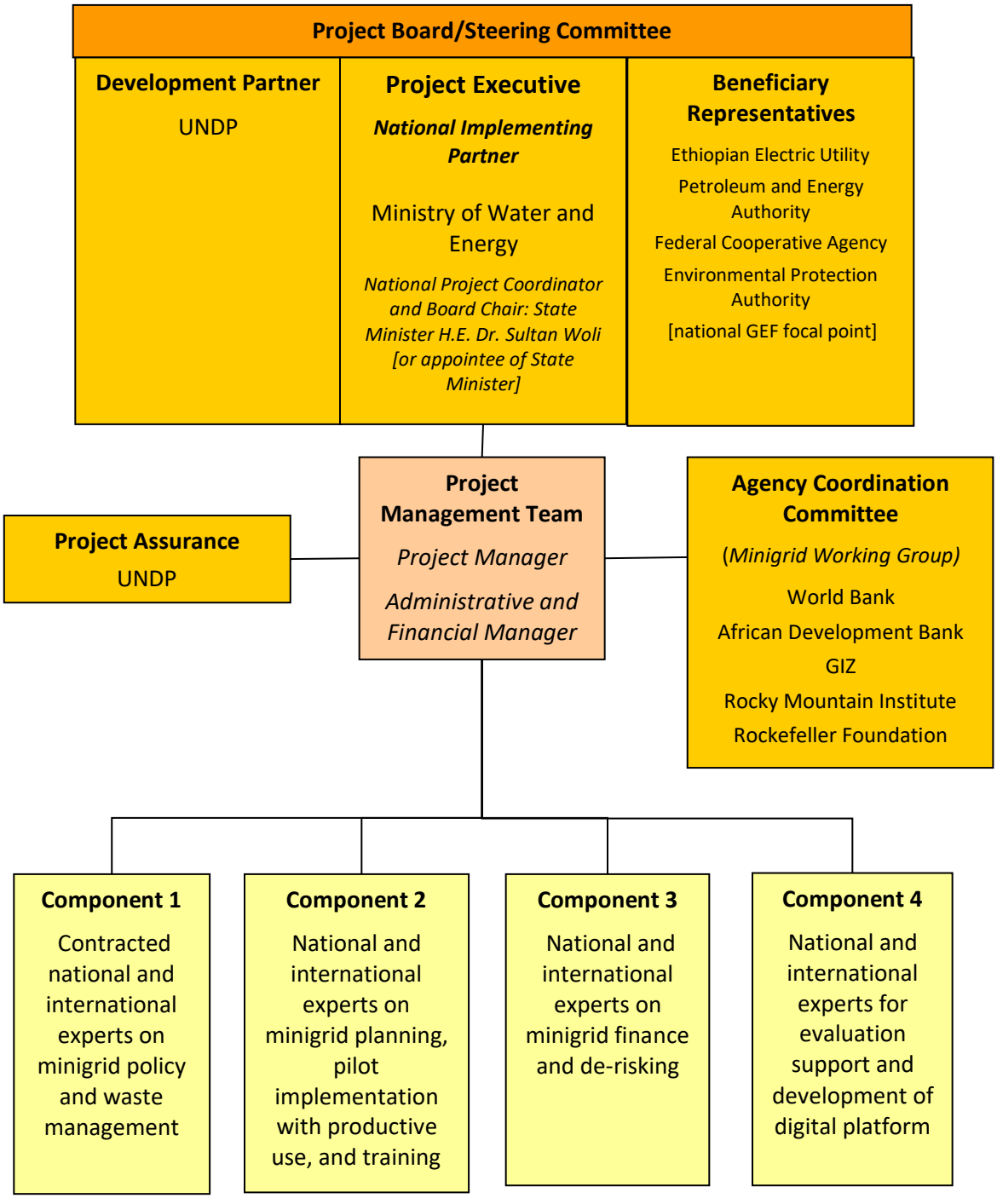
UNDP: UNDP is accountable to the GEF for the implementation of this project. This includes oversight of project execution to ensure that the project is being carried out in accordance with agreed standards and provisions. UNDP is responsible for delivering GEF project cycle management services comprising 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 organization structure

The organizational structure of the project is presented below in Figure 5.

Figure 5

Organizational Structure for Project Oversight, Management, Assurance, and Implementation



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 Implementing Partner;
- 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 'beneficiary representative' of the project on the AMP Regional Project's Steering Committee/Project Board (see Box 5 for more information).

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

- 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: *H.E. Dr. Sultan Woli, State Minister (Energy Sector) [or appointee of State Minister]*

- 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. Beneficiary representative(s) is/are to be named, but will likely include representatives of the Petroleum and Energy Authority, the Ethiopian Electric Utility, the Federal Cooperative Agency, and the Environmental Protection Authority (EPA). Furthermore, a beneficiary representative is also expected to take part in the AMP Regional Project activities (see Box 5). That representative will be determined at project inception[13].
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Box 5 Linkages to the AMP Regional Project – Representation in the AMP Regional Project Board

The AMP national projects will be among the primary beneficiaries of regional project activities. As such and in line with established practice in similar global/regional projects, each national project will be expected to be represented in the regional project board/steering committee as a '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 project board meetings via video-

- 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(s) is UNDP [to be represented by Resident Representative, Deputy Resident Representative, or appointee]
- 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.

Project extensions

The UNDP Resident Representative and the UNDP-GEF Executive Coordinator must approve all project extension requests. Note that all extensions incur costs and the GEF project budget cannot be increased. A single extension may be granted on an exceptional basis and only if the following conditions are met: one extension only for a project for a maximum of six months; the project management costs during the extension period must remain within the originally approved amount, and any increase in PMC costs will be covered by non-GEF resources; the UNDP Country Office oversight costs in excess of the CO's Agency fee specified in the DOA during the extension period must be covered by non-GEF resources.

Project staff

The project will include two full-time staff members, a *Project Manager* and an *Administrative and Financial Manager*.

The Project Manager will be responsible for the following:

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

- Manage and oversee the day-to-day operations of the project;
- Monitor and control the progress of the project at both a broad strategic level and at the specific level of individual targeted outcomes, outputs, and impacts;
- Monitor the implementation of project components, analyses problems that hamper their implementation and takes appropriate measures to ensure timely delivery of required inputs and achievement of project-wide results;
- Track risks, adopt mitigation strategies under the guidance and instruction of the Project Board, and report actions and add new risks as needed to the Risk Log;
- Prepare Annual Work Plans for discussion and approval of the Project Board;
- Regularly brief the Project Board and relevant stakeholders about project progress;
- Organize regular Project Board meetings;
- Mobilize goods and services to initiative activities, including drafting TORs and work specifications;
- Manage requests for the provision of financial resources, using advance of funds, direct payments, or reimbursement, with the support of the Administrative and Financial Manager;
- Prepare the Quarterly Project Report (progress against planned activities, update on Risks and Issues, expenditures in UNDP format) and Quarterly Operational Report and submit the reports to the Project Assurance team;
- Prepare the Annual Review Report (UNDP format) and Project Implementation Report (GEF format) and submit reports to the Project Assurance team and GEF; based on the ARR, prepare the Annual Work Plan (AWP) and Annual Plan of Activities and Procurement Plan for the project years;
- Monitor financial resources and accounting to ensure accuracy and reliability of financial reports, including proper utilization of funds and delivery, budget revisions, availability of funds, reconciliation of accounts, establishment of internal control mechanisms. Acts as a focal point to liaise with auditors and ensures follow-up actions. Ensures the accuracy and reliability of financial information and reporting;
- Organize regular sessions of the Agency Coordination Committee and integrate inputs into project planning and implementation;
- Organize workshops, seminars and round tables to introduce project outputs to all stakeholders involved. Render support to related UNDP thematic activities such as publications, sharing of knowledge and group discussions;
- Liaise with other UNDP and UNDP-GEF funded projects to implement possible synergies and reports to UNDP Programme Officer and NPC on conducted activities;
    1. Ensure proper operational, financial and programmatic closure of the project;
    2. Prepare Final Project Review Reports to be submitted to the Project Board;
    3. Identify follow-on actions and submit them for consideration to Project Board;
    4. Manage the transfer of project deliverables, documents, files, equipment and materials to national beneficiaries.

The Administrative and Financial Manager will have the following key responsibilities:

1. Support the Project Manager in tracking and reporting all expenses of the project in the context of approved annual and overall project budgets
2. Support the Project Manager in procurement of contracted services;
3. Support the Project Manager in ensuring timely and orderly reporting to the Project Board and the Project Assurance team
4. Support the Project Manager in organizing written outreach and convenings of the Agency Coordination Committee and local stakeholders

5. Support the project team as needed in management of travel, logistics, and inventory management.

Agency Coordination Committee (minigrid working group of donor agencies)

A working group of donor agencies involved with minigrid development in Ethiopia has already been established in order to ensure mutual awareness, coordination, synergy, and support. The AMP Project Manager will join this working group, participating in regular meetings and requesting discussions of AMP-specific issues as needed. It is expected that this group will engage in regular interactions by email, and will have more formal convenings at least twice per year.

VIII. FINANCIAL PLANNING AND MANAGEMENT

The total cost of the project is USD 16,644,577. This is financed through a GEF grant of USD 2,890,826, USD 300,000 in cash co-financing to be administered by UNDP, and co-financing from MoWE and the African Development Bank. UNDP, as the GEF Implementing Agency, is responsible for the oversight of the GEF resources and the cash co-financing transferred to UNDP bank account only.

Confirmed Co-financing: The actual realization of project co-financing will be monitored during the mid-term review and terminal evaluation process and will be reported to the GEF. Note that all project activities included in the project results framework that will be delivered by co-financing partners (even if the funds do not pass through UNDP accounts) must comply with UNDP's social and environmental standards. Co-financing will be used for the following project activities/outputs:

Co-financing source	Co-financing type	Co-financing amount	Planned Co-financing Activities/Outputs	Risks	Risk Mitigation Measures
UNDP	Cash	300,000	Support for gender specialist and environmental/social safeguards consultant working in Component 2, especially on Output 2.1. Support for publications and outreach materials in Output 4.5. Support for some Project Management Costs, including Administrative/Finance Assistant salary, driver and vehicle, and share of annual NIM audit.	Risks to realization of this co-financing are minimal.	The UNDP CO will monitor and coordinate expenditures to ensure fulfillment of this co-financing.

MoWE	Cash and in-kind	USD 12,473,751	Staff effort across all outputs, plus oversight of project management and provision of office space	Risks to realization of this co-financing are minimal, given the concreteness of MoWE's planned work on minigrids relevant to AMP. Still, political or other risks could affect delivery.	Monitoring of unfolding developments and close coordination of project planning between the Project Manager and senior MoWE leadership
African Development Bank	Parallel	USD 1,000,000	This co-financing pledge is one part of AfDB's written commitment to provide co-financing across the AMP at regional and national levels. AfDB's work in Ethiopia overlaps with all AMP outputs.	Risks to realization of this co-financing are minimal, but coordination of work will be needed	Close coordination of work and parallel spending through the Donor Coordination Committee

Budget Revision and Tolerance: As per UNDP requirements outlined in the UNDP POPP, the project board will agree on a budget tolerance level for each plan under the overall annual work plan allowing the project manager to expend up to the tolerance level beyond the approved project budget amount for the year without requiring a revision from the Project Board.

Should the following deviations occur, the Project Manager/CTA and UNDP Country Office will seek the approval of the BPPS/GEF team to ensure accurate reporting to the GEF:

a) Budget re-allocations among components in the project budget with amounts involving 10% of the total project grant or more;

b) Introduction of new budget items that exceed 5% of original GEF allocation.

Any over expenditure incurred beyond the available GEF grant amount will be absorbed by non-GEF resources (e.g. UNDP TRAC or cash co-financing).

Audit: The project will be audited as per UNDP Financial Regulations and Rules and applicable audit policies. Audit cycle and process must be discussed during the Inception workshop. If the Implementing Partner is an UN Agency, the project will be audited according to that Agencies applicable audit policies.

Project Closure: Project closure will be conducted as per UNDP requirements outlined in the UNDP POPP. All costs incurred to close the project must be included in the project closure budget and reported as final

project commitments presented to the Project Board during the final project review. The only costs a project may incur following the final project review are those included in the project closure budget.

Operational completion: The project will be operationally completed when the last UNDP-financed inputs have been provided and the related activities have been completed. This includes the final clearance of the Terminal Evaluation Report (that will be available in English) and the corresponding management response, and the end-of-project review Project Board meeting. **Operational closure must happen with 3 months after posting the TE report to the UNDP ERC**. The Implementing Partner through a Project Board decision will notify the UNDP Country Office when operational closure has been completed. At this time, the relevant parties will have already agreed and confirmed in writing on the arrangements for the disposal of any equipment that is still the property of UNDP.

Transfer or disposal of assets: In consultation with the Implementing Partner and other parties of the project, UNDP is responsible for deciding on the transfer or other disposal of assets. Transfer or disposal of assets is recommended to be reviewed and endorsed by the project board following UNDP rules and regulations. Assets may be transferred to the government for project activities managed by a national institution at any time during the life of a project. In all cases of transfer, a transfer document must be prepared and kept on file[14]. The transfer should be done before Project Management Unit complete their assignments.

Financial completion (closure): The project will be financially closed when the following conditions have been met: a) the project is operationally completed or has been cancelled; b) the Implementing Partner has reported all financial transactions to UNDP; c) UNDP has closed the accounts for the project; d) UNDP and the Implementing Partner have certified a final Combined Delivery Report (which serves as final budget revision).

The project will be financially completed **within 6 months of operational closure or after the date of cancellation**. Between operational and financial closure, the implementing partner will identify and settle all financial obligations and prepare a final expenditure report. The UNDP Country Office will send the final signed closure documents including confirmation of final cumulative expenditure and unspent balance to the BPPS/GEF Unit for confirmation before the project will be financially closed in Atlas by the UNDP Country Office.

Refund to GEF: Should a refund of unspent funds to the GEF be necessary, this will be managed directly by the BPPS/GEF Directorate in New York. No action is required by the UNDP Country Office on the actual refund from UNDP project to the GEF Trustee.

[14] See https://popp.undp.org/_layouts/15/WopiFrame.aspx?sourcedoc=/UNDP_POPP_DOCUMENT_LIBRARY/Public/PPM_Project%20Management_Closing.docx&action=default.

IX. TOTAL BUDGET AND WORK PLAN

TOTAL BUDGET AND WORK PLAN			
Atlas [1] Proposal or Award ID:	00136624	**Atlas Primary Output Project ID:**	00127444
Atlas Proposal or Award Title	National Child Project under the Africa Minigrids Program - Ethiopia		
Atlas Business Unit	ETH10		
Atlas Primary Output Project Title	National Child Project under the Africa Minigrids Program - Ethiopia		
UNDP-GEF PIMS No.	6338		
Implementing Partner	Ministry of Water and Energy		

Atlas Activity (GEF Component)	Atlas Implementing Agent	Atlas Fund ID	Donor Name	Atlas Budgetary Account Code	ATLAS Budget Account Description	*Year 1* (USD)	*Year 2* (USD)	*Year 3* (USD)	*Year 4* (USD)	Total (USD)	*See Budget Note:*
COMPONENT 1 Policy and Regulations	Ministry of Water and Energy (MoWE)	62000	GEF	72100	Contractual Services-Companies	191,000	56,000	56,000	99,000	402,000	1
				71600	Travel	6,000	8,400	8,400	6,000	28,800	2
				75700	Training, Workshops and Conferences	2,500	7,500	7,500	2,500	20,000	3
					sub-total GEF	**199,500**	**71,900**	**71,900**	**107,500**	**450,800**	
					Total Outcome 1	**199,500**	**71,900**	**71,900**	**107,500**	**450,800**	
COMPONENT 2 Business Model Development and Private Sector	Ministry of Water and Energy (MoWE)	62000	GEF	72100	Contractual Services-Companies	180,000	145,000	145,000	145,000	615,000	*4*
				72200	Equipment	-	700,000	377,521	55,047	1,132,568	*5*
				75700`	Training, Workshops and Conferences	1,000	2,000	2,000	2,000	7,000	*6*
					sub-total GEF	**181,000**	**847,000**	**524,521**	**202,047**	**1,754,568**	
		4000	UNDP	71200	International Consultants	35,000	35,000	-	-	70,000	*7*
				71300	Local Consultants	16,000	16,000	16,000	16,000	64,000	*8*
				71600	Travel	8,500	8,500	8,500	8,500	34,000	*9*
				75700	Training, Workshops and Conferences	5,000	4,000	4,000	4,000	17,000	*6*
					sub-total UNDP	**64,500**	**63,500**	**28,500**	**28,500**	**185,000**	

					Total Outcome 2	**245,500**	**910,500**	**553,021**	**230,547**	**1,939,568**	
COMPONENT 3 Scaled-Up Financing	Ministry of Water and Energy (MoWE)	62000	GEF	72100	Contractual Services-Companies	105,000	105,000	14,000	14,000	238,000	*10*
				75700	Training, Workshops and Conferences	-	1,600	1,600	1,600	4,800	*11*
					sub-total GEF	**105,000**	**106,600**	**15,600**	**15,600**	**242,800**	
					Total Outcome 3	**105,000**	**106,600**	**15,600**	**15,600**	**242,800**	
COMPONENT 4 Digital, Knowledge Management	Ministry of Water and Energy (MoWE)	62000	GEF	71200	International Consultants	-	40,000	-	40,000	80,000	*12*
				71300	Local Consultants		20,000		20,000	40,000	*13*
				72100	Contractual Services-Companies	30,000	46,000	32,000	57,000	165,000	*14*
				75700	Training, Workshops and Conferences	4,500	1,500	1,500	12,500	20,000	*15*
					sub-total GEF	**34,500**	**107,500**	**33,500**	**129,500**	**305,000**	
		4000	UNDP	74200	Audiovisual & Print Production	8,000	5,000	5,000	10,000	28,000	*16*
					sub-total UNDP	**8,000**	**5,000**	**5,000**	**10,000**	**28,000**	
					Total Outcome 4	**42,500**	**112,500**	**38,500**	**139,500**	**333,000**	
Project management costs	Ministry of Water and Energy (MoWE)	62000	GEF	71800	Contractual Services-Individual	30,000	30,000	30,000	30,000	120,000	*17*
				72200	Equipment and Furniture	6,658	-	-	-	6,658	*18*
				72500	Supplies	800	400	400	400	2,000	*19*
				74100	Professional Services	2,000	2,000	2,000	3,000	9,000	*20*
					sub-total GEF	**39,458**	**32,400**	**32,400**	**33,400**	**137,658**	
		4000	UNDP	71800	Contractual Services-Individual	12,000	12,000	12,000	12,000	48,000	*21*
				73400	Rental & Maintenance of Other Equipment	8,000	8,000	8,000	8,000	32,000	*22*
				74100	Professional Services	2,000	2,000	2,000	1,000	7,000	*20*
					sub-total UNDP	**22,000**	**22,000**	**22,000**	**21,000**	**87,000**	
					Total Project Management	**61,458**	**54,400**	**54,400**	**54,400**	**224,658**	
					SUB-TOTAL GEF	**559,458**	**1,165,400**	**677,921**	**488,047**	**2,890,826**	
					SUB-TOTAL UNDP	**94,500**	**90,500**	**55,500**	**59,500**	**300,000**	
					PROJECT TOTAL	**653,958**	**1,255,900**	**733,421**	**547,547**	**3,190,826**	

Summary of Funds: [15]

	Year 1	Year 2	Year 3	Year 4	TOTAL
GEF	559,458	1,165,400	677,921	488,047	**2,890,826**
UNDP	94,500	90,500	55,500	59,500	**300,000**
Subtotal	**653,958**	**1,255,900**	**733,421**	**547,547**	***3,190,826***

MoWE	2,000,000	4,000,000	4,473,751	2,000,000	**12,473,751**
African Development Bank	250,000	250,000	250,000	250,000	**1,000,000**
Subtotal	***2,250,000***	***4,250,000***	***4,723,751***	***2,250,000***	***13,473,751***
GRAND TOTAL	**30,483**	**4,051,138**	**4,593,138**	**4,105,776**	**16,664,577**

Budget note number	Comments
1	This line item includes contracted services for fulfillment of specific outputs as follows. 1. International contracted services on minigrid policy and institutions: Average $3500/week: 20 weeks in 2022 in support of Outputs 1.2 and 1.5; 16 weeks per year in 2023-25 in support of Output 1.5 2. International contracted services on DREI analysis: $30K in 2022 and 2025 3. National contracted services on DREI analysis: $800/week for 10 weeks in 2022 and 2025 4. Additional DREI core support $5K per year in 2022 and 2025 (standard across AMP national projects) 5. International contracted services on waste and decommissioning: $3500/week x 20 weeks in 2022 in support of Output 1.4 6. National contracted services on waste and decommissioning: $800/week x 10 weeks in 2022 in support of Output 1.4
2	Travel to convenings, including round-trip in-country travel and lodging, $300 x 4 travelers per event (5 events per year in 2022 and 2025, 7 events per year in 2023 and 2024 – see note 3)

[15] Summary table should include all financing of all kinds: GEF financing, co-financing, cash, in-kind, etc...

3	The AMP budget and work plan foresee convenings to disseminate findings and recommendations from Outputs 1.2 and 1.4, as follows: • 5 small convenings x $500 per event in Year 1 – total $2500 • 5 small convenings x $500 per event and 2 additional large convenings x $2500 per event in Year 2 – total $7500 • 5 small convenings x $500 per event and 2 additional large convenings x $2500 per event in Year 3 – total $7500 • 5 small convenings x $500 per event in Year 4 – total $2500 The total for this line item across all four project years is $20,000.
4	Contracted services as follows: 1. Minigrid planning and pilot implementation expert: $3500/wk x 40 person-weeks in 2022, and 30 weeks/year in 2023-25 across Outputs 2.1, 2.2., and 2.3 2. Contractor C' (Addis Ababa Inst of Technology) $40K per year 2022-25 in support of Output 2.3
5	Investment support for minigrid hardware in 2023 and 2024 (estimated 1-3 sites executed in 2022-2023 -- location, capacity, and specific costs and concessionality TBD based on assessment); investment support for purchase of productive use equipment in 2023-25 (specific items TBD but could include grain mills, pumps, cooking equipment, etc.)
6	12 small convenings per year x $500 starting in 2022 and extending across all four years of the project for stakeholder engagement, planning, and other needed aspects of minigrid pilot planning (Output 2.1) and training on productive use (Output 2.2). This expense will be shared between the GEF grant and UNDP TRAC funding.
7	Social and environmental safeguards consultant: $3500/week x 10 weeks in 2022 and 2023
8	Gender consultant: $800/week x 20 weeks/year in 2022-25
9	Travel by staff and contracted experts to sites -- 12 person-trips per year 2022-25, multiple sites per trip
10	Contracted services as follows: Contracted services on minigrid finance: average $3500/wk x 30 person-weeks in 2022 and 2023 in support of Output 3.1 and 3.2, then 4 weeks/year in 2024-25 in further support of Output 3.2
11	Convenings for bank training -- 2 events per year in 2023-25, $800 per event for space rental and other costs
12	International consultants for Midterm Review (2023) and Terminal Evaluation (2025) -- Output 4.4
13	National consultants for Midterm Review (2023) and Terminal Evaluation (2025) -- Output 4.4
14	Contracted services as follows:

	1. International contracted services on Quality Assurance and GHG evaluation: average $3500/wk x 4, 8, 4, and 14 person-weeks in 2022, 2023, 2024, and 2025 respectively, across all five outputs of Component 4 2. National contracted services for development and maintenance of digital platform and QA monitoring system -- $16K in first year (2022) incl design, $18K per year in 2023-24 for design and implementation, and $8K in 2025 for maintenance (Output 4.2, 4.3)
15	Costs of workshops including final conference (Outputs 4.4, 4.5)
16	Services for production of informational materials (video promotion, print reports, web, etc.) -- Output 4.5
17	Full-time Project Manager salary at $2500/month for full project period
18	Share of office furniture and computer equipment for Project Manager and Administrative and Finance Manager
19	Office supplies
20	Annual NIM financial audit. This expense will be shared between the GEF grant and UNDP TRAC funding.
21	Full-time Administrative and Finance Manager at $1000/month for full project period
22	Share of maintenance and fuel for vehicle shared with other UNDP programs

X. LEGAL CONTEXT

This project document shall be the instrument referred to as such in Article 1 of the Standard Basic Assistance Agreement between the Government of Ethiopia and UNDP, signed on 26 February 1981. All references in the SBAA to "Executing Agency" shall be deemed to refer to "Implementing Partner."

This project will be implemented by the Ministry of Water and Energy ("Implementing Partner") in accordance with its financial regulations, rules, practices and procedures only to the extent that they do not contravene the principles of the Financial Regulations and Rules of UNDP. Where the financial governance of an Implementing Partner does not provide the required guidance to ensure best value for money, fairness, integrity, transparency, and effective international competition, the financial governance of UNDP shall apply.

The designations employed and the presentation of material on this map do not imply the expression of any opinion whatsoever on the part of the Secretariat of the United Nations or UNDP concerning the legal status of any country, territory, city or area or its authorities, or concerning the delimitation of its frontiers or boundaries.

XI. RISK MANAGEMENT

Implementing Partner is a Government Entity (NIM).

1. Consistent with the Article III of the SBAA, the responsibility for the safety and security of the Implementing Partner and its personnel and property, and of UNDP's property in the Implementing Partner's custody, rests with the Implementing Partner. To this end, the Implementing Partner shall:
   a) put in place an appropriate security plan and maintain the security plan, taking into account the security situation in the country where the project is being carried;
   b) assume all risks and liabilities related to the Implementing Partner's security, and the full implementation of the security plan.

2. UNDP reserves the right to verify whether such a plan is in place, and to suggest modifications to the plan when necessary. Failure to maintain and implement an appropriate security plan as required hereunder shall be deemed a breach of the Implementing Partner's obligations under this Project Document.

3. The Implementing Partner agrees to undertake all reasonable efforts to ensure that no UNDP funds received pursuant to the Project Document are used to provide support to individuals or entities associated with terrorism and that the recipients of any amounts provided by UNDP hereunder do not appear on the list maintained by the Security Council Committee established pursuant to resolution 1267 (1999). The list can be accessed via http://www.un.org/sc/committees/1267/aq_sanctions_list.shtml.

4. The Implementing Partner acknowledges and agrees that UNDP will not tolerate sexual harassment and sexual exploitation and abuse of anyone by the Implementing Partner, and each of its responsible

parties, their respective sub-recipients and other entities involved in Project implementation, either as contractors or subcontractors and their personnel, and any individuals performing services for them under the Project Document.

(a) In the implementation of the activities under this Project Document, the Implementing Partner, and each of its sub-parties referred to above, shall comply with the standards of conduct set forth in the Secretary General's Bulletin ST/SGB/2003/13 of 9 October 2003, concerning "Special measures for protection from sexual exploitation and sexual abuse" ("SEA").

(b) Moreover, and without limitation to the application of other regulations, rules, policies and procedures bearing upon the performance of the activities under this Project Document, in the implementation of activities, the Implementing Partner, and each of its sub-parties referred to above, shall not engage in any form of sexual harassment ("SH"). SH is defined as any unwelcome conduct of a sexual nature that might reasonably be expected or be perceived to cause offense or humiliation, when such conduct interferes with work, is made a condition of employment or creates an intimidating, hostile or offensive work environment.

5. a) In the performance of the activities under this Project Document, the Implementing Partner shall (with respect to its own activities), and shall require from its sub-parties referred to in paragraph 4 (with respect to their activities) that they, have minimum standards and procedures in place, or a plan to develop and/or improve such standards and procedures in order to be able to take effective preventive and investigative action. These should include: policies on sexual harassment and sexual exploitation and abuse; policies on whistleblowing/protection against retaliation; and complaints, disciplinary and investigative mechanisms. In line with this, the Implementing Partner will and will require that such sub-parties will take all appropriate measures to:

    i. Prevent its employees, agents or any other persons engaged to perform any services under this Project Document, from engaging in SH or SEA;

    ii. Offer employees and associated personnel training on prevention and response to SH and SEA, where the Implementing Partner and its sub-parties referred to in paragraph 4 have not put in place its own training regarding the prevention of SH and SEA, the Implementing Partner and its sub-parties may use the training material available at UNDP;

    iii. Report and monitor allegations of SH and SEA of which the Implementing Partner and its sub-parties referred to in paragraph 4 have been informed or have otherwise become aware, and status thereof;

    iv. Refer victims/survivors of SH and SEA to safe and confidential victim assistance; and

    v. Promptly and confidentially record and investigate any allegations credible enough to warrant an investigation of SH or SEA. The Implementing Partner shall advise UNDP of any such allegations received and investigations being conducted by itself or any of its sub-parties referred to in paragraph 4 with respect to their activities under the Project Document, and shall keep UNDP informed during the investigation by it or any of such sub-parties, to the extent that such notification (i) does not jeopardize the conduct of the investigation, including but not limited to the safety or security of persons, and/or (ii) is

not in contravention of any laws applicable to it. Following the investigation, the Implementing Partner shall advise UNDP of any actions taken by it or any of the other entities further to the investigation.

b) The Implementing Partner shall establish that it has complied with the foregoing, to the satisfaction of UNDP, when requested by UNDP or any party acting on its behalf to provide such confirmation. Failure of the Implementing Partner, and each of its sub-parties referred to in paragraph 4, to comply of the foregoing, as determined by UNDP, shall be considered grounds for suspension or termination of the Project.

6. Social and environmental sustainability will be enhanced through application of the UNDP Social and Environmental Standards (http://www.undp.org/ses) and related Accountability Mechanism (http://www.undp.org/secu-srm).

7. The Implementing Partner shall: (a) conduct project and programme-related activities in a manner consistent with the UNDP Social and Environmental Standards, (b) implement any management or mitigation plan prepared for the project or programme to comply with such standards, and (c) engage in a constructive and timely manner to address any concerns and complaints raised through the Accountability Mechanism. UNDP will seek to ensure that communities and other project stakeholders are informed of and have access to the Accountability Mechanism.

8. All signatories to the Project Document shall cooperate in good faith with any exercise to evaluate any programme or project-related commitments or compliance with the UNDP Social and Environmental Standards. This includes providing access to project sites, relevant personnel, information, and documentation.

9. The Implementing Partner will take appropriate steps to prevent misuse of funds, fraud or corruption, by its officials, consultants, responsible parties, subcontractors and sub-recipients in implementing the project or using UNDP funds. The Implementing Partner will ensure that its financial management, anti-corruption and anti-fraud policies are in place and enforced for all funding received from or through UNDP.

10. The requirements of the following documents, then in force at the time of signature of the Project Document, apply to the Implementing Partner: (a) UNDP Policy on Fraud and other Corrupt Practices and (b) UNDP Office of Audit and Investigations Investigation Guidelines. The Implementing Partner agrees to the requirements of the above documents, which are an integral part of this Project Document and are available online at www.undp.org.

11. In the event that an investigation is required, UNDP has the obligation to conduct investigations relating to any aspect of UNDP projects and programmes in accordance with UNDP's regulations, rules, policies and procedures. The Implementing Partner shall provide its full cooperation, including making available personnel, relevant documentation, and granting access to the Implementing Partner's (and its consultants', responsible parties', subcontractors' and sub-recipients') premises, for such purposes at reasonable times and on reasonable conditions as may be required for the purpose of an investigation. Should there be a limitation in meeting this obligation, UNDP shall consult with the Implementing Partner to find a solution.

12. The signatories to this Project Document will promptly inform one another in case of any incidence of inappropriate use of funds, or credible allegation of fraud or corruption with due confidentiality.

    Where the Implementing Partner becomes aware that a UNDP project or activity, in whole or in part, is the focus of investigation for alleged fraud/corruption, the Implementing Partner will inform the UNDP Resident Representative/Head of Office, who will promptly inform UNDP's Office of Audit and Investigations (OAI). The Implementing Partner shall provide regular updates to the head of UNDP in the country and OAI of the status of, and actions relating to, such investigation.

13. UNDP shall be entitled to a refund from the Implementing Partner of any funds provided that have been used inappropriately, including through fraud or corruption, or otherwise paid other than in accordance with the terms and conditions of the Project Document. Such amount may be deducted by UNDP from any payment due to the Implementing Partner under this or any other agreement. Recovery of such amount by UNDP shall not diminish or curtail the Implementing Partner's obligations under this Project Document.

    Where such funds have not been refunded to UNDP, the Implementing Partner agrees that donors to UNDP (including the Government) whose funding is the source, in whole or in part, of the funds for the activities under this Project Document, may seek recourse to the Implementing Partner for the recovery of any funds determined by UNDP to have been used inappropriately, including through fraud or corruption, or otherwise paid other than in accordance with the terms and conditions of the Project Document.

    Note: The term "Project Document" as used in this clause shall be deemed to include any relevant subsidiary agreement further to the Project Document, including those with responsible parties, subcontractors and sub-recipients.

14. Each contract issued by the Implementing Partner in connection with this Project Document shall include a provision representing that no fees, gratuities, rebates, gifts, commissions or other payments, other than those shown in the proposal, have been given, received, or promised in connection with the selection process or in contract execution, and that the recipient of funds from the Implementing Partner shall cooperate with any and all investigations and post-payment audits.

15. Should UNDP refer to the relevant national authorities for appropriate legal action any alleged wrongdoing relating to the project, the Government will ensure that the relevant national authorities shall actively investigate the same and take appropriate legal action against all individuals found to have participated in the wrongdoing, recover and return any recovered funds to UNDP.

16. The Implementing Partner shall ensure that all of its obligations set forth under this section entitled "Risk Management" are passed on to each responsible party, subcontractor and sub-recipient and that all the clauses under this section entitled "Risk Management Standard Clauses" are included, *mutatis mutandis*, in all sub-contracts or sub-agreements entered into further to this Project Document.

XII. MANDATORY ANNEXES

1. GEF Budget Template (available from BPPS NCE-VF)
2. GEF Execution Support Letter (available at www.thegef.org or from BBPS NCE-VF)
3. Project Map and Geospatial Coordinates of the Project Area
4. Multiyear Workplan
5. Monitoring Plan
6. Social and Environmental Screening Procedure (SESP)
7. UNDP Atlas Risk Register
8. Overview of Technical Consultancies/Subcontracts
9. Stakeholder Engagement Plan
10. Environmental Social Management Framework (ESMF) [submitted separately]
11. Gender Analysis and Gender Action Plan
12. Procurement Plan – for first year of implementation
13. GHG Emissions Reduction Calculations [submitted separately]
14. Co-financing Letters [submitted separately]
15. GEF and/or LDCF/SCCF Core Indicators
16. GEF Taxonomy

Annex 1: GEF Budget Template

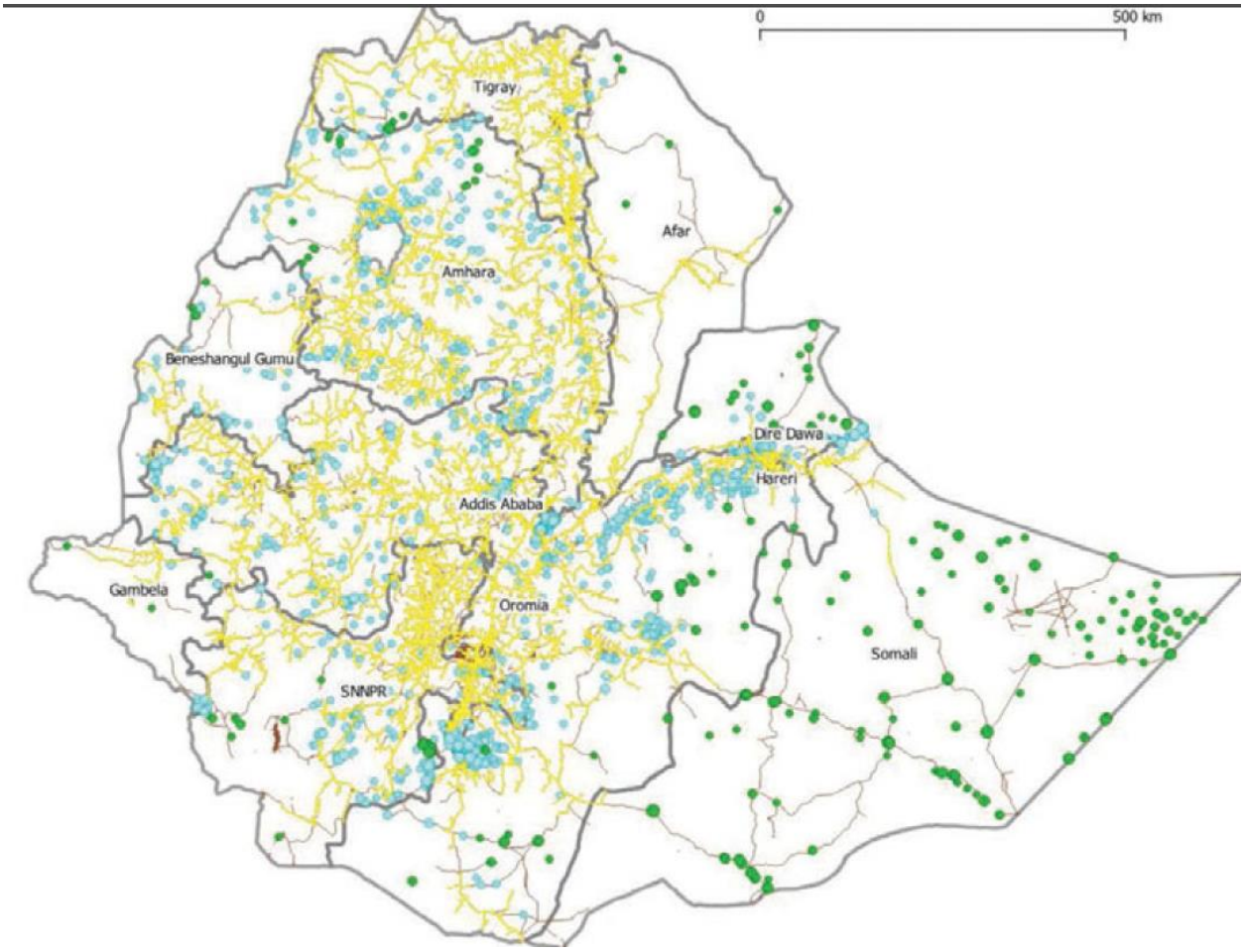
Annex 2: GEF execution support letter

Not applicable to this project, because under the full NIM modality, UNDP will provide only technical support, not execution support.

Annex 3: Project Map and Geospatial Coordinates of Project Sites

This map presents sites identified as priorities for minigrid development via a geospatial mapping conducted for the National Electrification Program 2.0. Remote sites more than 25 km from existing medium-voltage power lines are shown in green. These 285 sites have been identified for long-term minigrid deployment, without grid arrival. Sites between 2.5 and 25 km from the existing grid are shown in light blue. These 1,160 sites are being considered for implementation of minigrids as "pre-electrification" or "transitional" solutions with the expectation of eventual grid arrival.

The specific sites where the project will provide technical and investment support will be determined during the first three months of the project implementation period based on a short list of sites determined by MoWE at project inception.



Annex 4: Multiyear Work Plan

Please see Section IV (Results and Partnerships) of the Project Document narrative for more details on planned outputs and activities.

Component	Outcomes	Outputs	2021	2022				2023				2024				2025			
			Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Component 1	Stakeholder ownership in a national mini-grid delivery model is advanced, and appropriate policies and regulations are adopted to facilitate investment in renewable mini-grids.	1.1. Support for national dialogue, associated capacity enhancement and arrangements for implementation of cooperative minigrid delivery model(s)		*Activity 1.1.1.* Dialogue on cooperative minigrid delivery model															
					Activity 1.1.2. Gap analysis and recommendations for cooperative-owned delivery models	*Activity 1.1.3.* Technical and advisory services to FCA and REF													
		1.2. Establishment of regulations, technical and contract provisions, and consultation with developers and financiers on grid arrival arrangements			*Activity 1.2.1.* Development of comprehensive technical provisions and grid arrival regulations														
						Activity 1.2.2. Consultation to minigrid developers and financiers on grid arrival					*Activity 1.2.2.* Consultation to minigrid developers and financiers on grid arrival						*Activity 1.2.2.* Consultation to minigrid developers and financiers on grid arrival		
		1.3. Execution of the De-risking Renewable Energy Investment (DREI) analysis for solar PV minigrids				*Activity 1.3.1.* Year 1 DREI analysis		Activity 1.3.2, Dissemination of DREI findings and adaptive management								*Activity 1.3.3.* Year 4 DREI analysis			
		1.4. Development of decommissioning strategy and guidelines on waste management for minigrid components.			*Activity 1.4.1.* Assessment of existing markets and regulations, with forecasts for expected waste volumes and needs for recycling and	*Activity 1.4.2.* Report and recommendations on minigrid decommissioning and waste management	*Activity 1.4.3.* Preparation of a best-practice operational guide on waste management												

					waste management		*Activity 1.4.4*. Development of a tracking and reporting system for the forecasting of minigrid decommissioning schedules and associated waste management and recycling needs												
		1.5. Capacity-building for MoWE and its sectoral institutions via the MoWE Innovation Center (MIC).			*Activity 1.5.1*. Training event at MoWE Innovation Center		*Activity 1.5.1*. Training event at MoWE Innovation Center				*Activity 1.5.1*. Training event at MoWE Innovation Center				*Activity 1.5.1*. Training event at MoWE Innovation Center				
					Activity 1.5.2. Ongoing provision of guidance to MoWE and sectoral institutions													
Component 2	Innovative business models based on cost reduction operationalized, with strengthened private sector participation in renewable mini-grid development.	2.1. Implementation of pilot minigrids under cooperative delivery models.	*Activity 2.1.1.* Selection of pilot sites *Activity 2.1.6.* Installation and commissioning of minigrids	*Activity 2.1.2.* Design of tender process for pilots using digital platform *Activity 2.1.3.* Execution of tender, and selection of winning bidders	*Activity 2.1.4.* Development of site-specific social and environmental safeguards plans													
			Activity 2.1.5. Development and finalization of Minigrid Pilot Plan															
						Activity 2.1.6. Installation and commissioning of minigrids			*Activity 2.1.7* Monitoring, data collection and data aggregation from pilots via digital platform									

		2.2. Technical assistance for productive use in association with AMP-supported minigrids.				*Activity 2.2.1.* Delivery of training and business development support to cooperative minigrid owners and end-users, especially women, in business planning for productive use														
		2.3. Training, higher education programs, and internships established for minigrid design, installation, operations, maintenance, and business models.			*Activity 2.3.1.* Development of course curricula					*Activity 2.3.2.* Delivery of courses at Addis Ababa Institute of Technology *Activity 2.3.3.* Development and implementation of internship program										
Component 3	Financial sector actors are ready to invest in a pipeline of renewable minigrids and concessional financial mechanisms are in place to incentivize scaled-up investment.	3.1. Design support for financing and risk mitigation instruments, as well as development of operational guidance, provided for minigrid and productive use financing facility.				*Activity 3.1.1.* Review of DREI analysis findings and design of financial de-risking facility with the REF					*Activity 3.1.2.* Technical assistance to the REF in operationalizing the facility and monitoring performance of supported entities									
		3.2. Domestic financial sector capacity-building on business and financing models for minigrids			*Activity 3.2.1.* Design of training	*Activity 3.2.2.* Delivery of training to domestic banks and MFIs.				*Activity 3.2.2.* Delivery of training to domestic banks and MFIs				*Activity 3.2.2.* Delivery of training to domestic banks and MFIs				*Activity 3.2.2.* Delivery of training to domestic banks and MFIs		
Component 4	Data and digitalization are mainstreamed, across stakeholders, into local mini-grid market	4.1. A Digital Strategy is developed and implemented, including linkages to and following guidance from the AMP Regional Project		*Activity 4.1.1.* Development of digital strategy for the project platform for minigrids																

	development. Increased knowledge, awareness and network opportunities in the mini-grid market and among stakeholders, including benefitting from linkages to international good practice.	4.2. Minigrids digital platform implemented to run tenders and manage data from pilots, and to support minigrids scale-up and cost-reduction.		*Activity 4.2.1.* Assessment of existing digital platforms for minigrid management and determination whether AMP's platform can be built as an add-on to these platforms. *Activity 4.2.2.* Development of technical specifications for the AMP digital platform	*Activity 4.2.3.* Procurement of consultant services and execution of the platform	*Activity 4.2.4.* Capacity building of key stakeholders	*Activity 4.2.5*. Linkages to digital support activity of the AMP regional project
		4.3. 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.				*Activity 4.3.1.* Development of methodology and procedural framework for quality assurance and monitoring	*Activity 4.3.2.* Operationalization of this methodology for the AMP in Ethiopia, contributing to the reporting of impacts under Output 4.4

		4.4. M&E and Reporting, including (i) Conducting inception workshop and preparing report, (ii) Ongoing M&E, (iii) Midterm Evaluation and (iv) Terminal Evaluation.	See Monitoring and Evaluation Plan (Section VI) and Monitoring Plan (Annex 5)																
		4.5. Engage with regional project, including, but not limited to, via (i) participating in Communities of Practice and (ii) capturing and sharing lessons learnt.	*Activity 4.5.1.* Organization of participation by Ethiopian stakeholders in Communities of Practice organized by the regional AMP				*Activity 4.5.1.* Organization of participation by Ethiopian stakeholders in Communities of Practice organized by the regional AMP						*Activity 4.5.1.* Organization of participation by Ethiopian stakeholders in Communities of Practice organized by the regional AMP				*Activity 4.5.2.* Final report and lessons learned study		*Activity 4.5.3.* Closing conference

Annex 5: Monitoring Plan

This Monitoring Plan and the M&E Plan and Budget in Section VI of this project document will both guide monitoring and evaluation at the project level for the duration of project implementation.

Monitoring	Indicators	Targets	Description of indicators and targets	Data source/ Collection Methods[1]	Frequency	Responsible for data collection	Means of verification	Risks/Assumptions
Project Objective: Supporting access to clean energy by increasing the financial viability, and promoting scaled-up commercial investment, in renewable minigrids in Ethiopia with a focus on cost-reduction levers and innovative business models	*Indicator 1: Greenhouse gas emissions mitigated (metric tons of carbon dioxide equivalent)* *(Units of measure: metric tons of CO2e)*	Midterm: Zero, since the project pilot(s) have not yet been commissioned End of project: 16,836 (direct) 4,905,000 (indirect)	The cumulative emission reductions accruing during the 4-year project lifetime from the generation of renewable electricity as calculated in Annex 13.	Data sources will include design specifications for minigrids and annual energy sales data reported by minigrid operators via the digital platform developed under Output 4.2. Calculations of GHG emissions reductions will be carried out in accordance with the GHG monitoring framework developed and operationalized under Output 4.3. Emission factor for diesel baseline as in Annex 13 of this	Annually Reported in DO tab of the GEF PIR	Project Manager with support from consultant on GHG methodology	Examination of data sources by Midterm Reviewer and Terminal Evaluator, with oversight by the UNDP CO and UNDP/GEF RTA. Quality assurance to be carried out in accordance with the methodology developed under Output 4.3.	Technical difficulties in the digital platform would complicate the collection of data on minigrid performance and electricity sales.

				Project Document.				
	Indicator 2: Number of direct [and indirect] beneficiaries benefitting from clean, affordable and sustainable energy access via minigrids, disaggregated by gender and customer segment (residential, commercial and social)	31,625 people (of which 50% women) -------- 30,488 people (residential) 202 people (social) 935 people (commercial/PUE) ***31,625 people (total)*** -------- 6,098 connections (residential) 50 connections (social) 312 connections (commercial/PUE)) ***6,460 connections (total)***	The indicator captures the total number of beneficiaries disaggregated by sex; it also gives the total number of connections for productive energy uses (e.g. agricultural processing, commercial uses) and connections to social facilities such as schools and clinics.	These data will be collected directly from the operators of minigrids based on contractual agreements with the three types of customers and types of connections. The number of other types of beneficiaries (recipients of training, employees of productive use enterprises) will be tracked as the project delivers its capacity-building support	Annually Reported in DO tab of the GEF PIR	Project Manager with support from partners and contractors for minigrid pilots and productive use	Site inspection, including visual inspection of connections from the minigrids Examination of data sources by Midterm Reviewer and Terminal Evaluator, with oversight by the UNDP CO and UNDP/GEF RTA. Quality assurance to be carried out in accordance with the methodology developed under Output 4.3	Optimal monitoring of this indicator relies on thorough and accurate record-keeping by operators
	Indicator 3: Direct [and indirect] increase in	Midterm: Zero, since the project pilot(s) have not yet	The project will support investments in solar PV-battery	Design specifications of pilot minigrids	Annually	Project Manager, with support from	Examination of equipment purchase documentation,	Assumption that minigrids as built conform to original design specifications.

	installed solar minigrid capacity (MW)	been commissioned End of project: 0.624 MW (solar PV) 1.523 MWh (battery storage)	minigrids. This indicator will track the deployment of installed PV capacity, as well as the size of battery storage for meeting peak demand and night-time energy uses.	supported by the project	Reported in DO tab of the GEF PIR	contracted companies responsible for pilot minigrid design and installation	work logs, and site inspections	
	Indicator 4: Number of direct [and indirect] primary jobs created in the MG sector, disaggregated by gender, for mini-grid development, operation and productive use.	Midterm: 30, including 10 women (direct jobs in minigrid development) 50, including 25 women (direct jobs in productive use supported by new AMP-supported cooperative minigrids) End of project: 120, including 50 women (direct jobs in minigrid development) 150, including 75 women	Jobs created in the installation, operation, and maintenance of solar PV minigrids supported by the project, including jobs from associated productive use	Records from cooperative minigrid owners, installers, and operators, as well as productive use enterprises. Communications with recipients of training under Output 2.3	Annually Reported in DO tab of the GEF PIR	Project Manager with support from partners and contractors for minigrid pilots and productive use	Requests for communication with employees of minigrid developers and productive use enterprises Examination of data sources by Midterm Reviewer and Terminal Evaluator, with oversight by the UNDP CO and UNDP/GEF RTA. Quality assurance to be carried out in accordance with the methodology developed under Output 4.3	Optimal monitoring of this indicator relies on thorough and accurate record-keeping by operators and productive use enterprises

		(direct jobs in productive use supported by new AMP-supported cooperative minigrids)						
Outcome 1 Stakeholder ownership in a national minigrid delivery model is advanced, and appropriate policies and regulations are adopted to facilitate investment in renewable minigrids.	*Indicator 5: A minigrid delivery model to enable minigrid development is endorsed/ adopted by the national government through a consultative process involving key stakeholders (e.g. relevant ministries, local authorities, rural populations, private sector, media, etc.)* *Binary indicator (1/0)*	Midterm: Multi-stakeholder, national dialogue platform on cooperative minigrid delivery models established and active. End of project: At least one cooperative minigrid delivery model is identified and endorsed by the government through the work of the multi-stakeholder platform and dialogue.	This is a binary indicator expressing whether a target has been fulfilled or not. Score is 1 for fulfillment of the targets or 0 for non-fulfillment.	Documentation with government endorsement	Annually Reported in DO tab of the GEF PIR	Project Manager, with support from Federal Cooperative Authority (FCA), Rural Electrification Fund (REF), Petroleum and Energy Authority (P&EA), MoWE	Examination of data sources by Midterm Reviewer and Terminal Evaluator, with oversight by the UNDP CO and UNDP/GEF RTA. Quality assurance to be carried out in accordance with the methodology developed under Output 4.3	Assumption of thorough and clear documentation. Regulations, agency procedures, and strategic planning documents could all serve as suitable sources supporting evaluation of this indicator.

	Indicator 6: Number of <u>policy de-risking instruments</u> for minigrid investments identified and adopted by the national government	Midterm: At least one policy de-risking instrument identified and adopted End of project: At least two policy de-risking instruments identified and adopted	Unit of measure is the absolute number of adopted policy derisking instruments	Documentation from the P&EA, FCA, and REF of the adoption of the policy instruments	Annually Reported in DO tab of the GEF PIR	Project Manager, with support from P&EA, FCA, and REF	Examination of data sources by Midterm Reviewer and Terminal Evaluator, with oversight by the UNDP CO and UNDP/GEF RTA. Quality assurance to be carried out in accordance with the methodology developed under Output 4.3	This indicator can be evaluated in direct conjunction with Indicator 5 with regard to policy de-risking of cooperative delivery models
Outcome 2 Innovative business models based on cost reduction operationalized, with strengthened private sector participation in renewable minigrid development	*Indicator 7: Minigrid pilots implemented that demonstrate a delivery model, cost-reduction measure(s) and/or productive use of electricity* *(binary (1/0))*	Midterm: The project's detailed design plan (the 'Minigrid Pilot Plan') for advancing the minigrid pilots is developed, and cleared by UNDP. (1) Any project tendering process, as applicable, for minigrid pilots is launched. (1) End of project: 100% of the planned	This is a binary indicator expressing whether a target has been fulfilled or not. Score is 1 for fulfillment of the targets or 0 for non-fulfillment.	Pilot project documentation and site inspection	Annually Reported in DO tab of the GEF PIR	Project Manager, with support from cooperative minigrid owners, contracted pilot minigrid installer(s) and operator(s)	Examination of data sources by Midterm Reviewer and Terminal Evaluator, with oversight by the UNDP CO and UNDP/GEF RTA. Quality assurance to be carried out in accordance with the methodology developed under Output 4.3	Assumption of full cooperation of minigrid owner and operator in granting access to Project Manager and evaluators (required under support agreement)

		minigrid pilots, as identified in the project's Minigrid Pilot Plan, are commissioned. (1)						
	Indicator 8: Capacity of private sector minigrid developers and/or operators is enhanced to participate in sector-wide tendering processes led by MoWE and the EEU to develop and/or operate minigrids *(binary (1/0))*	Midterm: Planned capacity building activities for year 1 and 2 are implemented. (1) The capacity of targeted recipients is assessed by survey towards the end of year 2. On a scale of 1 to 5, an average score of at least 2 is achieved. End of project: Planned capacity building activities for year 3 and 4 are implemented. (1) The capacity of targeted recipients is	Survey will be administered to targeted beneficiaries (recipients of capacity-building and training). On the rating scale, 1 represents a low level of capacity and 5 represents a strong capacity to understand relevant issues and apply knowledge and skills to find effective solutions. (1)	Brief survey administered to participants in training	Annually Reported in DO tab of the GEF PIR	Project Manager, with support from Addis Ababa Institute of Technology (AAiT)	Examination of data sources by Midterm Reviewer and Terminal Evaluator, with oversight by the UNDP CO and UNDP/GEF RTA. Quality assurance to be carried out in accordance with the methodology developed under Output 4.3	Assumption that participants will faithfully and thoroughly complete surveys.

		assessed by survey towards the end of the project. On a scale of 1 to 5, an average score of at least 4 is achieved.						
Outcome 3 Financial sector actors are ready to invest in a pipeline of renewable minigrids and concessional financial mechanisms are in place to incentivize scaled-up investment.	*Indicator 9: Capacity of financial institutions is enhanced through training, knowledge sharing, and/or awareness raising events aimed at increasing the financial sector's capacity to evaluate investments in minigrids.* *(binary (1/0))*	Midterm: Planned capacity building activities for year 1 and 2 are implemented. (1) The capacity of targeted recipients , as assessed by survey towards the end of year On a scale of 1 to 5, an average score of at least 2 is achieved. End of project: Planned capacity building activities for year 3 and 4 are implemented. (1) The capacity of targeted recipients is	Survey will be administered to targeted beneficiaries (recipients of capacity-building and training). On the rating scale, 1 represents a low level of capacity and 5 represents a strong capacity to understand relevant issues and apply knowledge and skills to find effective solutions. (1)	Brief survey administered to participants in training	Annually Reported in DO tab of the GEF PIR	Project Manager, with support of contractor for delivery of training on minigrid financing	Examination of data sources by Midterm Reviewer and Terminal Evaluator, with oversight by the UNDP CO and UNDP/GEF RTA. Quality assurance to be carried out in accordance with the methodology developed under Output 4.3	Assumption that participants will faithfully and thoroughly complete surveys.

		assessed by survey towards the end of the project. On a scale of 1 to 5, an average score of at least 4 is achieved. (1)						
	Indicator 10: Number of new government- or impact investor-supported financing mechanisms offering concessional finance for renewable minigrids. *(binary (1/0))*	Midterm: At least one new complementary funding instrument is designed by AMP and operational. (1) End of project: At least one new complementary funding instrument is designed by AMP and operational. (1) At least one renewable mini-grid project has managed to obtain	This is a binary indicator expressing whether a target has been fulfilled or not. Score is 1 for fulfillment of the targets or 0 for non-fulfillment.	Documentation from the REF on new financing mechanisms and uptake by borrowers	Annually Reported in DO tab of the GEF PIR	Project Manager with support from REF	Examination of data sources by Midterm Reviewer and Terminal Evaluator, with oversight by the UNDP CO and UNDP/GEF RTA. Quality assurance to be carried out in accordance with the methodology developed under Output 4.3	It is possible that an instrument could be operational but still unsuccessful at attracting applicants.

		concessional finance (i.e. sign the relevant agreements) through the designed complementary funding instrument. (1)						
Outcome 4 Data and digitalization are mainstreamed, across stakeholders, into local minigrid market development. Increased knowledge, awareness and network opportunities in the minigrid market and among stakeholders, including benefitting from linkages to international good practice	*Indicator 11: A project digital strategy is prepared and implemented by the PMU to contribute to project implementation and local minigrid market development.* *(binary (1/0))*	Midterm: The project digital strategy is developed and being implemented. (1) End of project: 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)	This is a binary indicator expressing whether a target has been fulfilled or not. Score is 1 for fulfillment of the targets or 0 for non-fulfillment.	Project documentation on digital strategy	Annually Reported in DO tab of the GEF PIR	Project Manager	Examination of data sources by Midterm Reviewer and Terminal Evaluator, with oversight by the UNDP CO and UNDP/GEF RTA. Quality assurance to be carried out in accordance with the methodology developed under Output 4.3	Evidence of implementation of the digital strategy (Indicator 12) will largely overlap with evidence of implementation of the digital platform (Indicator 13).
	Indicator 12: Minigrid pilots sharing data	Midterm:	This is a binary indicator expressing	Examination of digital platform and data inputs	Annually (project	Project Manager with support	Examination of data sources by Midterm	It is relatively simple to determine whether this binary indicator has

	on minigrid performance with the regional project and other stakeholders following best practices and guidance received from the AMP Regional Project. *(binary (1/0))*	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) End of project: 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 [at least on a quarterly basis] using the project's 'digital & data management platform'. (1)	whether a target has been fulfilled or not. Score is 1 for fulfillment of the targets or 0 for non-fulfillment.	from minigrid operators	monitoring of indicator) Reported in DO tab of the GEF PIR (Data collection via digital platform from pilots will be compiled in real time, with summary statistics updated on a daily basis.)	from consultant on digital platform design, as well as minigrid operators using the platform	Reviewer and Terminal Evaluator, with oversight by the UNDP CO and UNDP/GEF RTA. Quality assurance to be carried out in accordance with the methodology developed under Output 4.3	been fulfilled. Assessment of the ***quality*** of the data collected would require more detailed assessment.

Annex 6: UNDP Social and Environmental Screening Procedure (SESP)

Project Information

Project Information	
1. Project Title	National child project under the GEF Africa Mini-grids Program
2. Project Number (i.e., Atlas project ID, PIMS+)	UNDP ID 6338
3. Location (Global/Region/Country)	Ethiopia
4. Project stage (Design or Implementation)	Design stage
5. Date	25 June 2021

Part A. Integrating Programming Principles to Strengthen Social and Environmental Sustainability

QUESTION 1: How Does the Project Integrate the Programming Principles in order to Strengthen Social and Environmental Sustainability?
Briefly describe in the space below how the project mainstreams the human-rights based approach
Rights holders are women and men, a great number belongs to the poor and marginalized sector such as customary community groups, rural population and resource dependent groups. This project will ensure that their rights are exercised by facilitating their own capacity to think, act, organize, and advocate these rights; and Primary duty-bearers comprise the State, with all its provincial agencies and institutions, and the staff dedicated to the project. This project will ensure their mandate will respect, protect, promote and fulfill the rights of the poor and marginalized sectors/groups in all spheres of life. The project addresses the human rights to sustainable development through the provision of measures to prevent the potential pollution from batteries and e-waste used at the project, as well as the monitored reduction of greenhouse gases emissions. Likewise, the project addresses the human rights to poverty alleviation and sustaining peace by taking into account the local communities as a workforce, including the fuel/energy sellers from the informal sector. Similarly, the project will ensure fair distribution of development opportunities and benefits through the empowerment of disadvantaged groups for example by capacity building. Altogether, the project fully incorporates the human Leave No One Behind approach, in particular through ensuring the participation, inclusion, equality and non-discrimination of disadvantaged groups (marginalized, discriminated and excluded), including the informal sector. This is achieved by design in the project, to empower them as active agents of the development process, facilitating their participation on the project design and implementation through the requirements established in this report. Similarly, the requirements here include actions to be taken related to advocacy, creating enabling environments, capacity development and support for civil society, community empowerment, and enhancing the quality and accessibility of services.

Across all project components, activities include the participation of varied stakeholders through capacity building strategies at the policy, program, monitoring and evaluation, knowledge management on environmental conservation, human rights, gender equality, and social protection perspectives so that the intended project results are achieved also beyond the project cycle.

Briefly describe in the space below how the project is likely to improve gender equality and women's empowerment

As the implications of gender in the sector are not fully understood or appreciated, a gender analysis has been conducted during project preparation to fully gauge the gender implications, identify possible interventions that can meaningfully improve and enhance women's participation, and develop specific indicators and targets related to gender equality. Based on that a gender action plan has been established at the same phase for the preparation of specific investment interventions that will include along the whole project cycle special attention for vulnerable groups, especially women and girls, who face multiple and intersecting forms of discrimination in the energy sector and in general in the society. Women are often marginalized and excluded from other forms of formal participation in the sector and the economy; often, they are reduced to the lower positions in the job market and as beneficiaries.

Briefly describe in the space below how the project mainstreams sustainability and resilience

The project is primarily focused on environmental sustainability. It should be noted that no activities that could cause harm may proceed until assessments are undertaken and management plans are in place for specific sites. The monitoring, reporting and verification (MRV) system that will be set up by the project will include social, environmental and financial indicators to safeguard the improvement of the individuals and local communities, with an emphasis on the most vulnerable groups and individuals identified. Additionally, a comprehensive Quality Assurance Framework (QAF) is expected to be operationalized through technical support from the regional AMP. Finally, the mechanisms established in this report will help to strengthen the enforcement of existing laws interacting with the energy sector in order to fulfil public services while promoting the vulnerable groups and their human rights involved to achieve such task.

Briefly describe in the space below how the project strengthens accountability to stakeholders

The stakeholder engagement plan, the information disclosure process, the grievance redress and the accountability mechanisms will strengthen remarkably the accountability of the most vulnerable groups and individuals affected by the Project both directly and indirectly at a fair level to the conventional groups. These processes and mechanisms have been established at the design phase and will continue along the project cycle. For example, to achieve this a multi-stakeholder platform will be set up to enhance horizontal participation and will include representatives from a varied range of groups in society.

Part B. Identifying and Managing Social and Environmental Risks

QUESTION 2: What are the Potential Social and Environmental Risks? Note: Complete SESP	QUESTION 3: What is the level of significance of the potential social and environmental risks? Note: Respond to Questions 4 and 5below before proceeding to Question 5			QUESTION 6: Describe the assessment and management measures for each risk rated Moderate, Substantial or High
Risk Description (broken down by event, cause, impact)[16]	Impact and Likelihood (1-5)	Significance (Low, Moderate, Substantial, High)	Comments (optional)	Description of assessment and management measures for risks rated as Moderate, Substantial or High
RISK 1: Risk on lack of capacities. The scope of this risk belongs to Overarching Principle 1 and Programmatic Principle 2. Event: It may occur that the capacity of duty-bearers (e.g. government agencies, local skilled staff) for implementation of some project activities may be insufficient. Similarly occurs with the capacity of rights-holders (e.g. project-affected persons) to claim their rights. Cause: The project activities considered involve innovation and so that may be relatively new in the project's area of influence for both duty-bearers and right-holders. Also, the UNDP Universal Human Rights Index informs concerns in this country regarding the capacities of right-	I = 4 L = 2	Moderate	This risk is relevant to the project activities supporting all components: - Policy and regulations - Business model innovation and private business - Scaled-up financing - Digital, Knowledge Management and Monitoring and Evaluation This risk is not covered by the national legal requirements to conduct the project activities and/or when requirements are in place there are signs of been inconsistently enforced to the UNDP SES level.	As the project is Substantial risk, an ESMF has been prepared and annexed to the ProDoc. The ESMF covers all project risks. It contains procedures for the further screening, assessment and management measures that are required during the project's implementation for compliance with the SES. A Stakeholder Engagement Plan has been prepared to manage this risk. See ESMF Attachment II (Risks A&M specifications) for details of assessment and management of this risk and all others.

[16] See "SESP Summary" for detailed breakdown by event, cause, impact.

holder related groups and public officials/institutions. Impact: This may pose a potential harm to meeting the rights of right-holders.				
RISK 2: Risk of project activities not being safeguards responsive during the project life cycle. . The scope of this risk belongs to Overarching Principle 1 and Programmatic Principle 2. Risk description: See tools implemented for the Programmatic Principles 3 and 5, Standards 3-7.	I = 3 L = 3	Moderate	Note that prohibited grounds of discrimination include race, ethnicity, sex, age, language, disability, sexual orientation, gender identity, religion, political or other opinion, national or social or geographical origin, property, birth, health status or other status including as an indigenous person or as a member of a minority. Unless safeguard measures are applied and enforced in terms of project interventions and future replicates when market escalates, the reality on the ground is that government policy decisions and investment promotion strategies take limited consideration of certain environmental and social aspects. A transversal aspect that could pose an unintended impact, particularly from the duty-bearers end. Therefore, this risk is relevant to the project activities supporting all components: - Policy and regulations - Business model innovation and private business - Scaled-up financing - Digital, Knowledge Management and Monitoring and Evaluation	See ESMF Attachment II for details of assessment and management of this risk.
RISK 3: Risk of exclusion of affected stakeholders due to their vulnerability and/or potential concerns about the project. The scope of this risk belongs to Programmatic Principle 5. Event: Stakeholders may be excluded at the participatory/beneficial activities of the project, and/or	I = 3 L = 3	Moderate	This risk is relevant to the project activities supporting the following components: - Policy and regulations - Business model innovation and private business - Scaled-up financing - Digital, Knowledge Management and Monitoring and Evaluation This risk is not covered by the national legal requirements to conduct the project activities and/or when requirements are in place there are signs of been inconsistently enforced to the UNDP SES level.	A Stakeholder Engagement Plan has been prepared to manage this risk. A project-level GRM will be put in place. See ESMF Attachment II for details of assessment and management of this risk.

retaliation/reprisals may occur based on their grievances and objections. Cause: The UNDP Universal Human Rights Index informs concerns in this country regarding the situation of vulnerable groups/persons and some forms of freedom. And, there is no evidence that the national regulatory framework requires and/or implements clear practices at mini-grid projects for the inclusion of all potentially affected stakeholders, in particular disadvantaged groups, to fully participating in decisions that may affect them for the type of activities included in this project. Similarly, there is no evidence that grievances or objections from these same stakeholders are being managed and resolved as a usual practice through internationally recognized methods. Impact: This may pose a challenge to ensure that affected stakeholders will fully participate in decisions that will affect them, they will feel safe to express grievances or objections, these will be taken into account, and no retaliation or reprisals will take place against those stakeholders who express concerns or grievances or seek to participate or obtain information on the project.				

RISK 4: Risk on Women. The scope of this risk belongs to Programmatic Principle 3. Event: Women may be excluded at the participatory/beneficial activities of the project. Cause: The male oriented nature of energy and the limited social statues and opportunities identified for women. Impact: This may pose a challenge to ensure that women will have the chance to participate at the decisions-making level.	I = 4 L = 4	Substantial	This risk is relevant to the project activities supporting the following components: - Policy and regulations - Business model innovation and private business - Scaled-up financing - Digital, Knowledge Management and Monitoring and Evaluation Output specifics: - This risk applies to activities related to implementing pilots and their M&E but also to policy and regulatory activities due to the indirect potential impacts, for example, if they lead to expanded minigrid coverage after the project across the country.	Measures have been established through the Gender Analysis and Action Plan established at the PPG phase, to manage and reduce the risks identified on women. See ESMF Attachment II for details of assessment and management of this risk.
RISK 5: Risk of damage to biodiversity and natural resources due to land changes and new productive uses of the energy. The scope of this risk belongs to Project Standard 1. Event: It may occur that they are within critical habitats and/or environmentally sensitive areas, will require changes to the use of lands and resources, and therefore will affect the ecosystems in it. This may be particularly important for productive use of the energy generated depending on the type of sector and activity to support. Cause: All mini-grids involve the construction of new infrastructure. New built structures alien to the pre-existing conditions in the area are an alteration, in essence, of the	I = 3 L = 2	Moderate	This risk is relevant to the project activities supporting the following components: - Policy and regulations - Business model innovation and private business - Scaled-up financing - Digital, Knowledge Management and Monitoring and Evaluation Output specifics: - This risk applies to activities related to implementing pilots and their M&E but also to policy and regulatory activities due to the indirect potential impacts, for example, if they lead to expanded minigrid coverage after the project across the country.	Country specifics: - At the time of this document no information was yet available to study this risk at the site level. Therefore, to be conservative, it is realistic to assume that each site will require assessment and management. Potential gaps to be addressed will be identified through the gap analysis as indicated in the ESMF. The necessary management plan/measures will be put in place as part of ESMP(s), based on the ESIAs. See ESMF Attachment II and XIV for details of assessment and management of this risk.

biodiversity and natural resources in the project area of influence. Impact: At the construction stage, expected impacts related to the removal and displacement of the existing natural resources to allow the new structures to be built. At the operational stage, expected impacts related to, for example, maintaining natural resources not needed by the project to a minimal despite their natural reproduction/growth. Furthermore, mini-grids with a productive use entail unforeseen impacts should be expected according to the type of sector and activity to develop. And at the decommission stage, since the project will leave in place a built structure alien to pre-existing conditions in the area, the recovery of the original habitat and/or ecosystems and/or ecosystem services will be challenged.				
RISK 6: Adverse transboundary environmental concerns. The scope of this risk belongs to Project Standard 1. Event: It may occur that the equipment/materials for the project will affect the ecosystems at a transboundary level. Cause: All mini-grids involve the procurement and management of new equipment/chemicals outsourced internationally and are regarded as very challenging from the	I = 3 L = 1	Low	This risk is relevant to the project activities supporting the following components: - Policy and regulations - Business model innovation and private business - Scaled-up financing - Digital, Knowledge Management and Monitoring and Evaluation Output specifics: - This risk applies to activities related to implementing pilots and their M&E but also to policy and regulatory activities due to the indirect potential impacts, for example, if they lead to	Country specifics: - At the time of this document no information was yet available to study this risk at the site level. Therefore, to be conservative, it is realistic to assume that each site will require assessment and management. Potential gaps to be addressed will be identified through the gap analysis as indicated in the ESMF. The necessary management plan/measures, if any given that this risk is Low, will be put in place as part of ESMP(s), based on the ESIAs. See ESMF Attachment II for details of assessment and management of this risk.

sustainability perspective. Impact: Expected environmental impacts related to the procurement of equipment/materials outside the project influence			expanded minigrid coverage after the project across the country.	
RISK 7: Risk due to electrical shocks/effects on fauna, flora and people. The scope of this risk belongs to Project Standard 1 and 3. Event: Electrical shocks/effects may occur in fauna, flora and people. Cause: All mini-grids involve electrical equipment. Impact: At the operational stage, the electrical structure alien to pre-existing conditions in the area, may cause the damage/death/fire/etc… due to the interaction with fauna and flora.	I = 3 L = 1	Low	This risk is relevant to the project activities supporting the following components: - Policy and regulations - Business model innovation and private business - Scaled-up financing - Digital, Knowledge Management and Monitoring and Evaluation Output specifics: - This risk applies to activities related to implementing pilots and their M&E but also to policy and regulatory activities due to the indirect potential impacts, for example, if they lead to expanded minigrid coverage after the project across the country.	Country specifics: - At the time of this document no information was yet available to study this risk at the site level. Therefore, to be conservative, it is realistic to assume that each site will require assessment and management. Potential gaps to be addressed will be identified through the gap analysis as indicated in the ESMF. The necessary management plan/measures, if any given that this risk is Low, will be put in place as part of ESMP(s), based on the ESIAs. See ESMF Attachment II for details of assessment and management of this risk. Country specifics:
RISK 8: Risk of local climate change events, and weather & hydro related disasters. The scope of this risk belongs to Project Standard 2. Event: It is realistic to consider that climate events (i.e. earthquakes, floods, landslides, severe winds…) may occur in the project's area of influence and may affect to the built structures. Cause: The global increase of future climate change	I =3 L = 3	Moderate	This risk is relevant to the project activities supporting the following components: - Policy and regulations - Business model innovation and private business - Scaled-up financing - Digital, Knowledge Management and Monitoring and Evaluation Output specifics: This risk applies to activities related to implementing pilots and their M&E but also to policy and regulatory activities	Country specifics: - At the time of this document no information was yet available to study this risk at the site level. Therefore, to be conservative, it is realistic to assume that each site will require assessment and management. Potential gaps to be addressed will be identified through the gap analysis as indicated in the ESMF. The necessary management plan/measures will be put in place as part of ESMP(s), based on the ESIAs.

and subsequent disaster. And, all mini-grids are open air structures exposed to climate events and involve build structures that may be vulnerable to the impacts of climate change or disasters. Impact: They could increase climate related effects and the number of disasters in the project area.			due to the indirect potential impacts, for example, if they lead to expanded minigrid coverage after the project across the country.	See ESMF Attachment II for details of assessment and management of this risk.
RISK 9: Risk of overestimated emissions due to embedded activities. The scope of this risk belongs to Project Standard 2. Event: The procurement of equipment for the project will probably be outsourced internationally resulting in embedded emissions. Cause: All mini-grids involve solar panels and other activities that be imply indirect carbon emissions due to the project. Impact: They could decrease the calculated climate impact related to emissions avoided by the project.	I = 2 L = 2	Low	This risk is relevant to the project activities supporting the following components: - Policy and regulations - Business model innovation and private business - Scaled-up financing - Digital, Knowledge Management and Monitoring and Evaluation Output specifics: - This risk applies to activities related to implementing pilots and their M&E but also to policy and regulatory activities due to the indirect potential impacts, for example, if they lead to expanded minigrid coverage after the project across the country.	See ESMF Attachment II for details of assessment and management of this risk. Though the risk is Low, it will be covered by the project's assessments as needed for SES compliance. Country specifics: - Ethiopia involves lower risk because no project activities involving the implementation of concerning minigrid equipment (i.e. no batteries, no solar panels…)
RISK 10: Risk of overestimated emissions due to aggregation to a third-party project. The scope of this risk belongs to Project Standard 2. Event: The aggregation of the activities within the AMP to a third-party project may be accounted as	I = 3 L = 2	Moderate	This risk is relevant to the project activities supporting the following components: - Policy and regulations - Business model innovation and private business - Scaled-up financing - Digital, Knowledge Management and Monitoring and Evaluation	There are project activities potentially considering to act as an aggregation to third-party initiatives. Therefore, to be conservative, it is realistic to assume that each site will require assessment and management. See ESMF Attachment II for details of assessment and management of this risk.

reductions assigned to the AMP activities instead of the third-party project. Cause: Third party activities may be difficult to discern between projects. Impact: Assigning the achievements of the overall project (including third party activities) to which the AMP activities are aggregated would lead to an increase of carbon emission avoided to the atmosphere.			Output specifics: - This risk applies to activities related to implementing pilots and their M&E but also to policy and regulatory activities due to the indirect potential impacts, for example, if they lead to expanded minigrid coverage after the project across the country.	
RISK 11: Risk on the community due to hazardous materials (mainly batteries, e-waste, chemicals for land clearance). The scope of this risk belongs to Project Standard 3. Event: It may occur that activities and/or structures result hazardous to the community. Cause: The use of hazardous materials by the project. Impact: This may lead to non-desired effects to the community.	I = 2 L = 2	Low	This risk is relevant to the project activities supporting the following components: - Policy and regulations - Business model innovation and private business - Scaled-up financing - Digital, Knowledge Management and Monitoring and Evaluation Ethiopia involves lower risk because no project activities involving the implementation of concerning minigrid equipment (i.e. no batteries, no solar panels…) Ethiopia involves ower risk because project activities will be aggregated to other ongoing projects with equivalent safeguard requirements to UNDP focused on this provided that it can be demonstrated the risk can be mitigated through such third-party requirements and capacity. Output specifics: - This risk applies to activities related to implementing pilots and their M&E but also to policy and regulatory activities due to the indirect potential impacts, for example, if they lead to expanded minigrid coverage after the project across the country.	Country specifics: - At the time of this document no information was yet available to study this risk at the site level. Therefore, to be conservative, it is realistic to assume that each site will require assessment and management. Potential gaps to be addressed will be identified through the gap analysis as indicated in the ESMF. . The necessary management plan/measures, if any given this risk is considered low, will be put in place as part of ESMP(s), based on the ESIAs. See ESMF Attachment II for details of assessment and management of this risk.

RISK 12: Ambient perturbance on the community due to intense works locally at construction and decommissioning, and new economic activities subsequent from productive use of the energy. The scope of this risk belongs to Project Standard 3. Event: It may occur that some new activities and/or structures may interact with the surrounding area and/or involve the alteration of the normal functioning of the community health, safety and/or security in the project's area of influence, mainly as noise and physical hazards. Cause: The construction or/and decommissioning of the mini-grid and the energy generated by the project will raise new activities and/or new built structures. Impact: This may lead to the perturbance of the community's health, safety and/or security.	I = 2 L = 2	Low	This risk is relevant to the project activities supporting the following components: - Policy and regulations - Business model innovation and private business - Scaled-up financing - Digital, Knowledge Management and Monitoring and Evaluation Ethiopia involves lower risk because project activities will be aggregated to other ongoing projects with equivalent safeguard requirements to UNDP focused on this provided that it can be demonstrated the risk can be mitigated through such third-party requirements and capacity. Output specifics: - This risk applies to activities related to implementing pilots and their M&E but also to policy and regulatory activities due to the indirect potential impacts, for example, if they lead to expanded minigrid coverage after the project across the country.	Country specifics: - At the time of this document no information was yet available to study this risk at the site level. Therefore, to be conservative, it is realistic to assume that each site will require assessment and management. Potential gaps to be addressed will be identified through the gap analysis as indicated in the ESMF. - The necessary management plan/measures, if any given this risk is considered Low, will be put in place as part of ESMP(s), based on the ESIAs. See ESMF Attachment II for details of assessment and management of this risk.
RISK 13: Risk on community health, safety and/or security due to the influx of people, mainly project workers and other new comers subsequent to the new economic activities resulting from the productive use of the energy. The scope of this risk belongs to Project Standard 3. Event: It may occur that the new activities in the local area will attract new comers in the project's	I = 2 L = 2	Low	This risk is relevant to the project activities supporting the following components: - Policy and regulations - Business model innovation and private business - Scaled-up financing - Digital, Knowledge Management and Monitoring and Evaluation Ethiopia involves lower risk because project activities will be aggregated to other ongoing projects with equivalent safeguard requirements to UNDP focused on this provided	Country specifics: - At the time of this document no information was yet available to study this risk at the site level. Therefore, to be conservative, it is realistic to assume that each site will require assessment and management. Potential gaps to be addressed will be identified through the gap analysis as indicated in the ESMF. • The necessary management plan/measures, if any given this risk is considered low, will be put in place as part of ESMP(s), based on the ESIAs.

area of influence. Cause: The project construction/decommissioning and the energy generated by the project will raise new activities and/or new built structures. Impact: This may lead to effects on community health, safety and/or security as this new influx of people, expected to be mainly men, may interact with the local residents and/or involve the alteration of the normal functioning of the community leading to new diseases and/or gender safety concerns.			that it can be demonstrated the risk can be mitigated through such third-party requirements and capacity. Output specifics: - This risk applies to activities related to implementing pilots and their M&E but also to policy and regulatory activities due to the indirect potential impacts, for example, if they lead to expanded minigrid coverage after the project across the country. This risk scores higher than the environmental risks because it is not covered by the national legal requirements to conduct the project activities and/or when requirements are in place there are signs of been inconsistently enforced to the UNDP SES level.	See ESMF Attachment II for details of assessment and management of this risk.
RISK 14: Risk on damage of cultural heritage. The scope of this risk belongs to Project Standard 4. Event: It may occur that excavations and other environmental changes take place, and they may be within or adjacent to project's areas of influence containing some form of cultural heritage (i.e. sacred places). Cause: built structures involve excavations and are alien to the pre-existing conditions in the area are an alteration. Impact: At the construction stage, this may lead to impacts related to the removal and displacement of the existing cultural heritage to allow the new structures to be built. Furthermore,	I = 3 L = 1	Low	This risk is relevant to the project activities supporting the following components: - Policy and regulations - Business model innovation and private business - Scaled-up financing - Digital, Knowledge Management and Monitoring and Evaluation Ethiopia involves lower risk because project activities will be aggregated to other ongoing projects with equivalent safeguard requirements to UNDP focused on this provided that it can be demonstrated the risk can be mitigated through such third-party requirements and capacity. Output specifics: - This risk applies to activities related to implementing pilots and their M&E but also to policy and regulatory activities due to the indirect	Country specifics: - At the time of this document no information was yet available to study this risk at the site level. Therefore, to be conservative, it is realistic to assume that each site will require assessment and management. Potential gaps to be addressed will be identified through the gap analysis as indicated in the ESMF. - The necessary management plan/measures will be put in place as part of ESMP(s), based on the ESIAs. See ESMF Attachment II for details of assessment and management of this risk.

mini-grids with a productive use entail unforeseen impacts should be expected according to the type of sector and activity to develop. And at the decommission stage, since the project will leave in place a built structure and/or new activities alien to pre-existing conditions in the area, the recovery of the original cultural heritage will be challenged.			potential impacts, for example, if they lead to expanded minigrid coverage after the project across the country. This risk is not covered by the national legal requirements to conduct the project activities and/or when requirements are in place there are signs of been inconsistently enforced to the UNDP SES level.	
RISK 15: Risk of physical displacement and loss of livelihood due to eviction from land. The scope of this risk belongs to Project Standard 5. Event: All mini-grid systems involve the acquisition of land, and they may be within or adjacent areas containing existing energy/fuel providers, including those from the informal/traditional sectors. Cause: All mini-grids involve the construction of new infrastructure. New built structures occupy land, and access to the area may be restricted, and new energy service options for consumers arise. Also, the UNDP Universal Human Rights Index informs concerns in this country regarding forced evictions and/or land rights. Impact: At the construction stage, expected impacts related to the displacement of the existing legal or illegal inhabitants to allow the new	I =4 L = 2	Moderate	This risk is relevant to the project activities supporting the following components: - Policy and regulations - Business model innovation and private business - Scaled-up financing - Digital, Knowledge Management and Monitoring and Evaluation Output specifics: This risk applies to activities related to implementing pilots and their M&E but also to policy and regulatory activities due to the indirect potential impacts, for example, if they lead to expanded minigrid coverage after the project across the country. • This risk is not covered by the national legal requirements to conduct the project activities and/or when requirements are in place there are signs of been inconsistently enforced to the UNDP SES level.	Country specifics: - At the time of this document no information was yet available to study this risk at the site level. Therefore, to be conservative, it is realistic to assume that each site will require assessment and management. Potential gaps to be addressed will be identified through the gap analysis as indicated in the ESMF. - The necessary management plan/measures will be put in place as part of ESMP(s), based on the ESIAs. See ESMF Attachment II for details of assessment and management of this risk.

structures to be built. And at the decommission stage, since the project will leave in place built structure and/or new activities alien to pre-existing conditions in the area, the return of the inhabitants and their livelihood will be challenged.				
RISK 16: Risk of economic displacement due to loss of income from fuel selling. The scope of this risk belongs to Project Standard 5. Event: Traditional fuels supplied by local providers, including those from the informal/traditional sectors see their market diminished. Cause: Some mini-grid systems and project appliances to be implemented may replace an activity that was fueled with other energy sources like wood charcoal, paraffin, kerosene, diesel. For example in the households these activities may be cooking and lighting while in the community/commercial scope it may be diesel for the existing mini-grids. Impact: the change on the fuel used (i.e. from charcoal, private diesel mini-grids… to the service the renewable energy mini-grid provides) would lead to the loos of income for fuel suppliers, potentially these are mainly poor women selling in the informal market.	I = 4 L= 2	Moderate	This risk is relevant to the project activities supporting the following components: - Policy and regulations - Business model innovation and private business - Scaled-up financing - Digital, Knowledge Management and Monitoring and Evaluation Output specifics: - This risk applies to activities related to implementing pilots and their M&E but also to policy and regulatory activities due to the indirect potential impacts, for example, if they lead to expanded minigrid coverage after the project across the country. This risk is not covered by the national legal requirements to conduct the project activities and/or when requirements are in place there are signs of been inconsistently enforced to the UNDP SES level.	Country specifics: - At the time of this document no information was yet available to study this risk at the site level. Therefore, to be conservative, it is realistic to assume that each site will require assessment and management. Potential gaps to be addressed will be identified through the gap analysis as indicated in the ESMF. • The necessary management plan/measures will be put in place as part of ESMP(s), based on the ESIAs. See ESMF Attachment II for details of assessment and management of this risk.

RISK 17: Risk of economic displacement towards the payment of energy services replacing the previous options. The scope of this risk belongs to Project Standard 5. Event: Electricity supplied by the project represents a higher cost to users that previously. Cause: Poor users have no economic means to face the increased costs of the energy provided by the project. Impact: this would lead to the increase of debt due to electricity buying.	I = 4 L = 1	Low	This risk is relevant to the project activities supporting the following components: - Policy and regulations - Business model innovation and private business - Scaled-up financing - Digital, Knowledge Management and Monitoring and Evaluation Output specifics: - This risk applies to activities related to implementing pilots and their M&E but also to policy and regulatory activities due to the indirect potential impacts, for example, if they lead to expanded minigrid coverage after the project across the country. This risk is not covered by the national legal requirements to conduct the project activities and/or when requirements are in place there are signs of been inconsistently enforced to the UNDP SES level.	Country specifics: - At the time of this document no information was yet available to study this risk at the site level. Therefore, to be conservative, it is realistic to assume that each site will require assessment and management. Potential gaps to be addressed will be identified through the gap analysis as indicated in the ESMF. The necessary management plan/measures, if any given this risk is low, will be put in place as part of ESMP(s), based on the ESIAs. See ESMF Attachment II for details of assessment and management of this risk.
RISK 18: Risk to indigenous peoples. The scope of this risk belongs to Project Standard 6. Event: Indigenous Peoples may be excluded at the participatory/beneficial activities of the project. Cause: The formal oriented nature of energy and the limited social statues and opportunities identified for Indigenous Peoples. Impact: This may pose a challenge to ensure that Indigenous Peoples will have the chance to participate at the decisions-making level.	I =3 L = 3	Moderate	Due to the relative nature of the term “indigenous” a generic concept is considered. This may include tribes, first peoples/nations, aboriginals, ethnic groups, occupational and geographical related groups like hunter-gatherers, nomads, peasants, hill people, etc., are also considered for all practical purposes as “indigenous peoples”. This risk is relevant to the project activities supporting the following components: - Policy and regulations - Business model innovation and private business - Scaled-up financing - Digital, Knowledge Management and Monitoring and Evaluation Output specifics:	Country specifics: - At the PPG phase, these countries have confirmed the presence of indigenous groups at the national level. This increases the risks of the project on indigenous peoples. At the time of this document Indigenous Peoples studies have been conducted by an Indigenous Peoples expert. Therefore, it is expected that the risks identified here will be mitigated and managed during the project cycle. As part of the ESIA/ESMP, an Indigenous Peoples Plan will be put in place and FPIC secured, if necessary for SES compliance. See ESMF Attachment II for details of assessment and management of this risk.

			This risk applies to activities related to implementing pilots and their M&E but also to policy and regulatory activities due to the indirect potential impacts, for example, if they lead to expanded minigrid coverage after the project across the country. This risk is not covered by the national legal requirements to conduct the project activities and/or when requirements are in place there are signs of been inconsistently enforced to the UNDP SES level. Therefore, if no mitigation or management measures within the Environmental and Social safeguards were to be put in place this risk would be important.	
RISK 19: Risk on labour opportunity and working conditions. The scope of this risk belongs to Project Standard 7. Event: It may occur that working conditions are not meet the minimum criteria to satisfy the UNDP's requirements. It may also occur that unskilled/manual labour loses their jobs. Cause: all project stages (i.e. construction, operation…) will require labour, some project activities will displace unskilled/manual labour, and the UNDP Universal Human Rights Index informs concerns in this country regarding labour rights, employment rates and/or working conditions for some of the stakeholder groups relevant to this project. Impact: This may lead to the use of child, forces, discriminatory, under-minimum practices and/or occupational	I = 3 L = 1	Low	This risk is relevant to the project activities supporting the following components: - Policy and regulations - Business model innovation and private business - Scaled-up financing - Digital, Knowledge Management and Monitoring and Evaluation Ethiopia involves lower risk because project activities will be aggregated to other ongoing projects with equivalent safeguard requirements to UNDP focused on this provided that it can be demonstrated the risk can be mitigated through such third-party requirements and capacity. Output specifics: - This risk applies to activities related to implementing pilots and their M&E but also to policy and regulatory activities due to the indirect potential impacts, for example, if they lead to expanded minigrid coverage after the project across the country. This risk is not covered by the national legal requirements to conduct the project activities and/or when requirements	Country specifics: - At the time of this document no information was yet available to study this risk at the site level. Therefore, to be conservative, it is realistic to assume that each site will require assessment and management. Potential gaps to be addressed will be identified through the gap analysis as indicated in the ESMF. The necessary management plan/measures, if any given that this risk is considered low, will be put in place as part of ESMP(s), based on the ESIAs. See ESMF Attachment II for details of assessment and management of this risk.

health and safety accidents/incidents.			are in place there are signs of been inconsistently enforced to the UNDP SES level.	
RISK 20: Risk on pollution and resource efficiency. The scope of this risk belongs to Project Standard 8. Event: Pollution may occur, and resource efficiency is not practiced to meet the minimum criteria to satisfy the UNDP's requirements. Cause: All mini-grids will require resources and/or will lead with materials, waste and/or chemicals. And the UNDP Universal Human Rights Index informs concerns in this country regarding responsible consumption and production, clean water and sanitation, and life on land. Impact: This may lead to the significant consumption of raw materials, energy and/or waste, and the release of pollutants, generation of waste, hazardous/phase-outs materials, chemicals, pesticides.	I = 3 L = 1	Low	This risk is relevant to the project activities supporting the following components: - Policy and regulations - Business model innovation and private business - Scaled-up financing - Digital, Knowledge Management and Monitoring and Evaluation Ethiopia involves lower risk because project activities will be aggregated to other ongoing projects with equivalent safeguard requirements to UNDP focused on this provided that it can be demonstrated the risk can be mitigated through such third-party requirements and capacity. Output specifics: This risk applies to activities related to implementing pilots and their M&E but also to policy and regulatory activities due to the indirect potential impacts, for example, if they lead to expanded minigrid coverage after the project across the country.	Country specifics: - At the time of this document no information was yet available to study this risk at the site level. Therefore, to be conservative, it is realistic to assume that each site will require assessment and management. Potential gaps to be addressed will be identified through the gap analysis as indicated in the ESMF. The necessary management plan/measures, if any given this risk is low, will be put in place as part of ESMP(s), based on the ESIAs. See ESMF Attachment II for details of assessment and management of this risk.

	QUESTION 4: What is the overall project risk categorization?				
	Low Risk	☐	•		
	Moderate Risk	☐	•		
	Substantial Risk	X	Note: • Requirements from Question 5 apply to this level of risk, for each Programmatic Principle and Project Standard triggered at this level of risk, a scoped study on key risks is required. • Project aspects rated as Low Risk may be able to proceed while the assessments for other higher risk activities are being conducted.		
	High Risk	☐	•		
	QUESTION 5: Based on the identified risks and risk categorization, what requirements of the SES are triggered? (check all that apply)				
	Question only required for Moderate, Substantial and High Risk projects				
	Is assessment required? (check if “yes”)	X			Status? (completed, planned)

	if yes, indicate overall type and status			Targeted assessment	Stakeholder Analysis - Completed, a Stakeholder Engagement Plan has been conducted at the PPG phase before PAC approval of the project. - Planned, a Stakeholder Engagement Plan for each sub-project (as needed for SES compliance) and will need to update the completed previous to the approval of the sub-project. Gender Action Plan: See ProDoc; completed during PPG. Capacity assessment for duty-bearers - Ongoing, a Capacity Assessment for duty-bearers (top and bottom, i.e. government and security personnel) at the project has been initiated at the PPG phase before PAC approval of the project. See ProDoc. - Additionally, at the sub-project level, further capacity assessment for duty-bearers locally is planned and will need to the completed previous to the approval of each sub-project. Capacity assessment for right-holders - Ongoing, a Capacity Assessment for rights-holders (top and bottom, i.e. pan-African/national and local) at the project has been initiated at the PPG phase before PAC approval of the project. See ProDoc. - Additionally, at the sub-project level, further capacity assessment for right-holders locally is planned and will need to the completed previous to the approval of each sub-project. Indigenous Peoples analysis: Completed at the PPG phase before PAC approval of the project. Other targeted assessments might be required (separate from the ESIA requirements noted below) and will be determined during implementation of the ESMF. That could include (inter alia): - A Cultural Heritage Analysis - A climate risk assessment, - A disaster risk assessment, - A hazard assessment, - A health impact assessment,

			X	ESIA (Environmental and Social Impact Assessment)	Planned, as noted in the ESMF.
			X	SESA (Strategic Environmental and Social Assessment)	Planned.
	Are management plans required? (check if "yes)	X			
	If yes, indicate overall type			Targeted management plans (e.g. Gender Action Plan, Emergency Response Plan, Waste Management Plan, others)	Capacity Management Plan: Planned, for each sub-project and will need to the completed previous to the approval of the sub-project. Stakeholder Engagement Plan - Completed, a Stakeholder Engagement Plan has been conducted at the PPG phase before PAC approval of the project. - Planned, a Stakeholder Engagement Plan for each sub-project and will need to the completed previous to the approval of the sub-project. Gender Action Plan: See ProDoc; completed during PPG Other target management plans might be required (separate from the ESMP requirements noted below) and will be determined during implementation fo the ESMF. That could include (inter alia): - Emergency Response Plan - Waste Management Plan - Labor Management Procedures (LMP) - Biodiversity Action Plan
			X	ESMP (Environmental and Social Management Plan which may include range of	Planned, as noted in the ESMF.

				targeted plans)	
			X	ESMF (Environmental and Social Management Framework)	Completed during PPG (covering this AMP child project and others). Exceptionally, only if the project design (i.e. components, activities) change along the project cycle, this ESMF will need to be re-visited. See exclusion criteria in the ProDoc, Annex 10.
	Based on identified risks, which Principles/Project-level Standards triggered?		Comments (not required)		
	Overarching Principle 1: Leave No One Behind	n/a			
	Programming Principle 2: Human Rights	X			
	Programming Principle 3: Gender Equality and Women's Empowerment	X			
	Programming Principle4: Sustainability and Resilience	n/a			
	Programming Principle 5: Accountability	X			
	1. Project- level Standard 1. - Biodiversity Conservation and Sustainable Natural Resource Management	X			

	Project- level Standard 2. Climate Change and Disaster Risks	X	
	Project- level Standard 3. Community Health, Safety and Security		-
	Project- level Standard 4. Cultural Heritage		
	Project- level Standard 5. Displacement and Resettlement	X	
	Project- level Standard 6. Indigenous Peoples	X	
	Project- level Standard 7. Labour and Working Conditions		
	Project- level Standard 8. Pollution Prevention and Resource Efficiency		

Final Sign Off

Signature	Date	Description
QA Assessor		UNDP staff member responsible for the Project, typically a UNDP Programme Officer. Final signature confirms they have "checked" to ensure that the SESP is adequately conducted.
QA Approver		UNDP senior manager, typically the UNDP Deputy Country Director (DCD), Country Director (CD), Deputy Resident Representative (DRR), or Resident Representative (RR). The QA Approver cannot also be the QA Assessor. Final signature confirms they have "cleared" the SESP prior to submittal to the PAC.
PAC Chair		UNDP chair of the PAC. In some cases, PAC Chair may also be the QA Approver. Final signature confirms that the SESP was considered as part of the Project appraisal and considered in recommendations of the PAC.

Annex 7: UNDP ATLAS Risk Register

#	Description	Risk Category	Impact & Probability	Risk Treatment / Management Measures	Risk Owner
Strategic risks					
1	Cooperative minigrid delivery models with associated productive use development prove not to be cost-effective and scalable because of prevailing market conditions outside the control of the project	Strategic	Impact (I) = 4 Likelihood (L) = 3 Risk rating = Moderate	AMP will consider a wide range of possible variants of cooperative delivery models in Outputs 1.1 and 2.1, as well as a full range of productive uses in Output 2.2.	MoWE and UNDP
2	Even with support on technical and contractual provisions and consultation on grid arrival (Output 1.2), transitional minigrids prove not to be viable and too administratively complex to be developed in a timely and scaled manner with private-sector or cooperative involvement	Strategic	I = 4 L = 4 Moderate	If transitional minigrids prove too problematic for alternative delivery models with private sector involvement, AMP will shift the focus to assisting the EEU and MoWE in broader strategic planning on transitional minigrids within the context of NEP 2.0 and public sector delivery models, and pilot investments where the potential for viable investments is present.	MoWE and UNDP
3	Climate change exacerbates the unpredictability, frequency, and severity of droughts, floods, and other hydrometeorological events, thus reducing viability of agro-industrial productive use	Strategic (See also the climate risk in the Social and Environmental risk section below)	I = 2 L = 3 Moderate	AMP activity will take account of climate risks in its business forecasting as well as its own implementation plans. It is expected that value chain enhancement from productive use may well increase climate resilience because economic returns will become less exclusively dependent on raw agricultural output. Productive use focusing on e-mobility and electric cooking will further hedge against risks of agricultural losses.	MoWE and UNDP

#	Description	Risk Category	Impact & Probability	Risk Treatment / Management Measures	Risk Owner
4	Interest in training at Addis Ababa Institute of Technology on minigrid development and operations (Output 2.3) is low because students see greater interest or stronger job prospects in other sectors	Strategic	I = 3 L = 2 Moderate	AMP will seek close coordination with ADELE and AMAP to help ensure that job opportunities for domestic minigrid professionals are transparently available.	MoWE, UNDP, and AAiT
5	Demand for new financial de-risking instruments is low because of the low volume of cooperative and private-sector minigrid development and the high availability of baseline concessional financing	Strategic	I = 2 L = 3 Low	The recommendations of the DREI analysis (Output 1.3) will focus on de-risking measures with the most potential impact relative to market demand and the existing financial ecosystem for minigrids	MoWE, Rural Electrification Fund, DREI consultant, and UNDP
6	The AMP's development of a digital platform creates redundancy or conflict with regard to existing, more widely used digital platforms for minigrid tenders and data management, developed by other donor-funded projects	Strategic	I = 2 L = 1 Low	AMP will seek close coordination with the EEU and other donor-funded projects to ensure that work on digital platforms is fully harmonized.	MoWE, EEU, and UNDP, in coordination with donor-funded projects, especially ADELE and AMAP
Political risk					
7	Political uncertainty persists into the project period, with the possibility of extended disruption to project activity	Political	I = 4 L = 4 Substantial	The project will closely monitor the unfolding situation throughout the country and will adjust its project plans accordingly. If conditions make the fulfillment of project activity unrealistic or impossible, then the project will apply adaptive management to reallocate project resources and reframe activities.	MoWE, UNDP, and other members of the Project Board
Operational risks					
8	The COVID-19 pandemic and its after-effects persist into the project period. The continuation of the pandemic	Operational	I = 4 L = 4	The project will take account of COVID-19 risks and contingencies in the planning of all its activities, especially the	MoWE, UNDP, Addis Ababa Institute of Technology,

#	Description	Risk Category	Impact & Probability	Risk Treatment / Management Measures	Risk Owner
	could lead to several possible effects: a. Lockdowns and other restrictions on movement and business activity b. National and global disruption of supply chains, leading to higher costs and delays c. Reduced ability of cooperatives and developers to maintain normal operations because of new financial stresses d. Reduced ability of end-users to pay for minigrid electricity services		Substantial	scoping, detailed budgeting, and business plan development for pilots of Output 2.1. Activities that may be delayed as a result of any remaining or new COVID-related restrictions will be identified at project inception and launched as early as possible. The project will observe all applicable public health orders of the government. Where COVID-19 risk is high and when lockdowns are applied, the project will apply virtual stakeholder meetings and trainings.	and local partners
9	The existing staff capacity of MoWE and other agencies is strained because of high workloads from other donor-funded initiatives	Operational	I = 4 L = 4 Substantial	The management structure of the project has been developed in recognition of this risk. The Project Manager, Administrative/Financial Manager, and hired consultants will help ensure that the project can operate normally even given the competing time demands of MoWE personnel. Output 1.5 (capacity-building via the MoWE Innovation Center) will also help manage this risk.	MoWE with UNDP support
10	Procurement delays slow the fulfillment of key outputs and achievement of outcomes	Operational	I = 3 L = 3 Moderate	The MoWE has requested RMI to take the role as the Responsible Party reducing the need for consultants. Consultancy services can be contracted in larger and fewer contracts	MoWE, UNDP, and contracted experts

#	Description	Risk Category	Impact & Probability	Risk Treatment / Management Measures	Risk Owner
				reducing the burden of contract management. Contracts for minigrid deployment will be turnkey reducing the burden on MoWE and accounting for the small size. The contracting will also account for UNDP's experience and lessons learnt in Ethiopia.	
11	The low availability of mobile connectivity in remote areas of Ethiopia complicates the implementation of digital platforms for minigrid monitoring and performance evaluation	Operational	I = 3 L = 3 Moderate	AMP will closely coordinate its activities in Outputs 4.1 and 4.2 with the relevant work of ADELE and AMAP on digital platforms. Mobile connectivity is a criteria for site selection to ensure that cost effectiveness can be achieved and knowledge can be disseminated.	MoWE, UNDP, with support from other donor agencies
Social and environmental risks (Moderate and Substantial risks from the Social and Environmental Screening – for full elaboration of all these risks, as well as risks rated Low, see Annex 6)					
12	(SESP Risk 1) Risk on lack of capacities of duty-bearers and rights-holders.	Social and Environmental	I = 4 L = 2 Moderate	The project will build significant capacity of stakeholders involved in minigrid development. The Stakeholder Engagement Plan outlines the details for managing risks.	MoWE with support from UNDP
13	(SESP Risk 2) Risk of project activities not being safeguards responsive during the project life cycle.	Social and Environmental	I = 3 L = 3 Moderate	Project activities will be implemented according to the AMP ESMF, and be subject to reviews during implementation	MoWE with support from UNDP
14	(SESP Risk 3) Risk of exclusion of affected stakeholders due to their vulnerability and/or potential concerns about the project. Stakeholders may be excluded	Social and Environmental	I = 3 L = 3 Moderate	The AMP Stakeholder Engagement Plan and ESMF manage this risk. A project-level Grievance Redress Mechanism will be put in place.	MoWE with support from UNDP

#	Description	Risk Category	Impact & Probability	Risk Treatment / Management Measures	Risk Owner
	at the participatory/beneficial activities of the project, and/or retaliation/reprisals may occur based on their grievances and objections.				
15	(SESP Risk 4) Risk of excluding women at the participatory/beneficial activities of the project.	Social and Environmental	I = 3 L = 3 Moderate	Female/led Cooperatives are part of the site selection criteria. Measures have been established by the Gender Analysis and Action Plan to manage and reduce risks identified for women. See ESMF for details of assessment and management of this risk.	MoWE with support from UNDP
16	(SESP Risk 5) Risk of damage to biodiversity and natural resources due to land changes and new productive uses of the energy.	Social and Environmental	I = 3 L = 2 Moderate	Project sites will be selected in accordance with the ESMF and national requirements. Construction activities are expected to minimal. Construction and installation contracts will reflect the ESMF requirements and be closely monitored during implementation.	MoWE with support from UNDP
17	(SESP Risk 8) Risk of climate change events, such weather related disasters.	Social and Environmental	I =3 L = 3 Moderate	Project site selection will account for climate risk and the performance specifications. These will be reflected in contracts will ensure that the projects withstand variability in climate such as temperature. Certain increased losses can be expected if the temperature rises above established temperatures.	MoWE with support from UNDP

#	Description	Risk Category	Impact & Probability	Risk Treatment / Management Measures	Risk Owner
18	(SESP Risk 15) Risk of physical displacement and loss of livelihood due to eviction from land.	Social and Environmental	I =3 L = 2 Moderate	Project sites will be selected during the inception phase of the project. Potential sites will require field visits and an assessment of the social and environmental impacts in accordance with the ESMF. Given the small size and limited land requirements the impacts are not expected to cause any displacements or economic loss.	MoWE with support from UNDP
19	(SESP Risk 16) Risk of economic displacement due to loss of income from fuel selling.	Social and Environmental	I = 4 L= 2 Moderate	See ESMF details of assessment and management of this risk. Preference will be given to green field sites with no existing electricity services.	MoWE with support from UNDP
20	(SESP Risk 18) Risk to indigenous peoples. Indigenous Peoples may be excluded at the participatory/beneficial activities of the project.	Social and Environmental	I =3 L = 3 Moderate	See ESMF for details of assessment and management of this risk.	MoWE with support from UNDP

Annex 8: Overview of Project Staff and Technical Consultancies

Consultant	Time Input	Tasks, Inputs and Outputs
For Project Management		
Project Manager Rate: $2500/month	12 months/year for four years	The Project Manager (PM) will be responsible for the overall management of the project, including the mobilization of all project inputs, supervision over project staff, consultants and sub-contractors. Duties and Responsibilities ▪ Manage the overall conduct of the project. ▪ Plan the activities of the project and monitor progress against the approved workplan. ▪ Execute activities by managing personnel, goods and services, training and low-value grants, including drafting terms of reference and work specifications, and overseeing all contractors' work. ▪ Monitor events as determined in the project monitoring plan, and update the plan as required. ▪ Provide support for completion of assessments required by UNDP, spot checks and audits. ▪ Manage requests for the provision of UNDP financial resources through funding advances, direct payments or reimbursement using the FACE form. ▪ Monitor financial resources and accounting to ensure the accuracy and reliability of financial reports. ▪ Monitor progress, watch for plan deviations and make course corrections when needed within project board-agreed tolerances to achieve results. ▪ Ensure that changes are controlled and problems addressed. ▪ Perform regular progress reporting to the project board as agreed with the board, including measures to address challenges and opportunities. ▪ Prepare and submit financial reports to UNDP on a quarterly basis. ▪ Manage and monitor the project risks – including social and environmental risks - initially identified and submit new risks to the Project Board for consideration and decision on possible actions if required; update the status of these risks by maintaining the project risks log; ▪ Capture lessons learned during project implementation. ▪ Prepare revisions to the multi-year workplan, as needed, as well as annual and quarterly plans if required. 1. Prepare the inception report no later than one month after the inception workshop.

		2. Ensure that the indicators included in the project results framework are monitored annually in advance of the GEF PIR submission deadline so that progress can be reported in the GEF PIR. • Prepare the GEF PIR; • Assess major and minor amendments to the project within the parameters set by UNDP-GEF; • Monitor implementation plans including the gender action plan, stakeholder engagement plan, and any environmental and social management plans; • Monitor and track progress against the GEF Core indicators. • Support the Mid-term review and Terminal Evaluation process.
Administrative and Finance Manager $1000/month	12 months/year for four years	Duties and Responsibilities Under the guidance and supervision of the Project Manager, the Project Manager will carry out the following tasks: • Assist the Project Manager in day-to-day management and oversight of project activities; • Ensure all project documentation (progress reports, consulting and other technical reports, minutes of meetings, etc.) are properly maintained in hard and electronic copies in an efficient and readily accessible filing system, for when required by PB, TAC, UNDP, project consultants and other PMU staff; • Provide PMU-related administrative and logistical assistance. • Keep records of project funds and expenditures, and ensure all project-related financial documentation are well maintained and readily available when required by the Project Manager; • Review project expenditures and ensure that project funds are used in compliance with the Project Document and GoI financial rules and procedures; • Validate and certify FACE forms before submission to UNDP; • Provide necessary financial information as and when required for project management decisions; • Provide necessary financial information during project audit(s); • Review annual budgets and project expenditure reports, and notify the Project Manager if there are any discrepancies or issues

Technical Assistance for Components and Outputs		
International experts on minigrid design, planning, business models, and financing Average $3500/person-week	AMP will support the hiring of international experts on minigrid design, planning, business models, and financing to support implementation of multiple project outputs. The outputs and their respected volumes of consultant support are as follows. Detailed Terms of Reference, including scope of work, accountability, and payment schedule, will be negotiated and formalized during the implementation period. It is possible but not necessary that some of these services could be bundled, with a single contractor handling work in multiple outputs.	
	20 weeks in 2022 and 4 weeks/year 2023-25	Support for Output 1.2 (development and delivery of technical and contracting provisions, consultation on grid arrival)
	12 weeks/year 2023-25	Support for Output 1.5 (capacity-building via MoWE Innovation Center). This work includes delivery of formal training as well as ongoing delivery of guidance and response to emergent questions and needs.
	36 weeks in 2022 and 6 weeks/year 2023-25	Support for Output 2.1 (planning and implementation of pilot cooperative-led minigrids). The consultant will support MoWE in selecting pilot minigrid sites; conducting local stakeholder outreach; development of design specifications; cost estimation; and oversight over implementation of the pilot minigrids by selected cooperative owners and developers.
	20 weeks/year starting in 2023	Output 2.2 (technical assistance for productive use associated with pilot minigrids). The consultant will provide business-planning assistance and training to entrepreneurs, especially women, who wish to conduct productive use activity in association with AMP-supported minigrids.
	4 weeks/year 2022-25	Output 2.3 (training for minigrid developers and operators in conjunction with Addis Ababa Institute of Technology): The consultant will help develop curricular materials and modules for delivery at the Addis Ababa Institute of Technology. The consultant may provide services as a guest lecturer.
	24 weeks/year in 2022-23	Output 3.1 (development of minigrid and productive use financial de-risking facility). The consultant will support the Rural Electrification Fund in development of a financial de-risking facility based on the findings of the DREI analysis of Output 1.3.

	6 weeks/year in 2022-23 and 4 weeks/year in 2024-25	Output 3.2 (training on minigrid business models and financing for domestic financial institutions): The consultant will deliver training to commercial banks and microfinance institutions on minigrid business models and financing. This training will be organized by the Project Manager.
	4, 12, 8 and 16 weeks respectively in 2022, 2023, 2024, and 2025	Output 4.3 and 4.4 (QA and GHG impact monitoring and evaluation). The consultant will assist the Project Manager in designing a methodology for quality assurance and impact evaluation, and then applying that methodology to assess project impact in conjunction with the Monitoring Plan (Annex 5), especially in support of the Midterm Review and Terminal Evaluation.
International DREI consultant $30,000 per assignment	8-10 weeks in 2022 and 2025	An international expert in the De-Risking Renewable Energy Investment (DREI) methodology will be hired to carry out a DREI assessment in the first and last years of the project (Output 1.3).
International consultant on minigrid decommissioning and waste management $3500/week	20 weeks in 2022	An international expert on minigrid decommissioning and waste management will be hired to develop recommendations, a best-practice guide, and a tracking/forecasting system for decommissioning (Output 1.4)
National consultant on minigrid decommission-ing and waste management $800/week	10 weeks in 2022	A national expert on minigrid decommissioning will be hired to conduct baseline research on waste volumes, waste processing and recycling capacity, and expected future needs in support of the development of recommendations, a best-practice guide, and a tracking/forecasting system for decommissioning of minigrids (Output 1.4)

Addis Ababa Institute of Technology Average $800/person-week	Ongoing work throughout all four years – approximately 50 person-weeks/year	AMP will enter into a contracted service arrangement with Addis Ababa Institute of Technology regarding the development, promotion, logistical arrangements, and delivery of accredited training on minigrid development and operations (Output 2.3). This work will begin in the first full project year and run throughout the project period.
Digital platform consultant $800/week	20 weeks in first year, then 10 weeks per year in years 2-4	AMP will hire a national expert to design and maintain the minigrid digital platform of Outputs 4.1 and 4.2. The expected volume and difficulty of this work is expected to be moderate because of the existence of similar platforms already in use by other donor-funded initiatives.
Gender and Social/Environmental Safeguards		
Project Gender Officer $3500/week	66 weeks over four years	Duties and Responsibilities - Monitor progress in implementation of the project Gender Action Plan ensuring that targets are fully met and the reporting requirements are fulfilled; - Oversee/develop/coordinate implementation of all gender-related work; - Review the Gender Action Plan annually, and update and revise corresponding management plans as necessary; - Work with the M&E officer and Safeguards Officer to ensure reporting, monitoring and evaluation fully address the gender issues of the project;
Social and Environmental Safeguards expert $3500/week	16 weeks in years 1 and 2 of project	Duties and Responsibilities 1. Develop detailed site-specific social and environmental safeguards plans, taking account of inputs of local stakeholders, for all project pilot sites 2. Assist the Project Manager in developing plans and procedures for ensuring compliance and reporting on social and environmental risk management 3. Monitor progress in development/implementation of the project ESMP/ESMF ensuring that UNDPs SES policy is fully met and the reporting requirements are fulfilled; 4. Oversee/develop/coordinate implementation of all safeguard related plans;

		5. Ensure social and environmental grievances are managed effectively and transparently; 6. Review the SESP annually, and update and revise corresponding risk log; mitigation/management plans as necessary; c) Ensure full disclosure with concerned stakeholders; d) Ensure environmental and social risks are identified, avoided, mitigated and managed throughout project implementation

Annex 9: Stakeholder Engagement Plan

1. Introduction

This Stakeholder Engagement Plan (SEP) for the Africa Minigrids Program (AMP) in Ethiopia defines how the AMP will identify and engage key stakeholders, and integrate their inputs into project implementation and risk management. Implementation of this plan will provide stakeholders with meaningful access to dialogue and decision-making in the development and implementation of the project. By providing channels for all stakeholders, including the disadvantaged and vulnerable, effective stakeholder engagement helps to ensure understanding, acceptance, and ownership of the project, thereby strengthening its benefits and sustainability.

Stakeholder engagement is an end in itself, ensuring that no one is left behind and that disadvantaged and vulnerable project stakeholders have a voice in project development and implementation. It is also a means for improving project design, identifying and managing risks, and ensuring transparency, accountability and integrity. In this light, one important purpose of this plan is to provide a feedback and monitoring mechanism to ensure the project is achieving its intended results, and identifies potential unintended consequences.

The development and implementation of the SEP is part of the UNDP Social and Environmental Safeguards (SES) requirements. Hence, the presented SEP will be reviewed and updated during the course of the social and environmental assessment processes required for the development of the project's Environmental and Social Management Framework (ESMF). See Annexes 6 (Social and Environmental Screening Procedure) and 10 (Environmental and Social Management Framework) for a full characterization of the social and environmental risks of the project, as well as proposed actions to manage them.

2. Summary of project strategy and outputs

The objective of the Africa Minigrids Program (AMP) in Ethiopia is supporting access to clean energy by increasing the financial viability and promoting scaled-up commercial investment in renewable minigrids in Ethiopia, with a focus on cost-reduction levers and innovative business models.

AMP consists of four components: (i) policy and regulations, (ii) business model innovation and private sector engagement, (iii)s caled-up financing, and (iv) digital technology and data, knowledge management, and monitoring and evaluation. These components are designed to systematically target and alleviate the investment risks that raise the costs of minigrid development, especially but not exclusively for the private sector. Removal of the risks will help reduce the costs of both financing and hardware, while also helping to improve revenue streams. Ultimately, accelerated deployment of minigrids leads to greenhouse gas emissions reductions, as well as to the socioeconomic benefits of poverty reduction and increased opportunity for women.

AMP includes the following planned outputs across the components.

- Output 1.1. Support for national dialogue, associated capacity enhancement and arrangements for implementation of cooperative minigrid delivery model(s)
- Output 1.2. Establishment of regulations, technical and contract provisions, and consultation with developers and financiers on grid arrival arrangements

- Output 1.3. Execution of the De-risking Renewable Energy Investment (DREI) analysis for solar PV minigrids
- Output 1.4. Development of decommissioning strategy and guidelines on waste management for minigrid components.
- Output 1.5. Capacity-building for MoWE and its sectoral institutions via the MoWE Innovation Center (MIC).
- Output 2.1. Implementation of pilot minigrids under cooperative delivery models.
- Output 2.2. Technical assistance for productive use in association with AMP-supported minigrids.
- Output 2.3. Training, higher education programs, and internships established for minigrid design, installation, operations, maintenance, and business models.
- Output 3.1. Design support for financing and risk mitigation instruments, as well as development of operational guidance, provided for minigrid and productive use financing facility.
- Output 3.2. Domestic financial sector capacity-building on business and financing models for minigrids
- Output 4.1: A Digital Strategy is developed and implemented, including linkages to and following guidance from the AMP Regional Project
- Output 4.2: Minigrids digital platform implemented to run tenders and manage data from pilots, and to support minigrids scale-up and cost-reduction.
- Output 4.3: 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 4.4: M&E and Reporting, including (i) Conducting inception workshop and preparing report, (ii) Ongoing M&E, (iii) Midterm Evaluation and (iv) Terminal Evaluation.
- Output 4.5: Engage with regional project, including, but not limited to, via (i) participating in Communities of Practice and (ii) capturing and sharing lessons learnt.

3. Stakeholder identification

As part of the project preparatory process, several groups of key stakeholders have been identified.

3.1 National government agencies

- ***Ministry of Water and Energy (MoWE).*** MoWE is the National Implementing Partner of the AMP. MoWE is the federal ministry responsible for development and regulation of water and energy services in Ethiopia. MoWE comprises several directorates, including three that are particularly relevant to the AMP.
- Directorate of Energy Policy
- Directorate of Electrification
- Directorate of Women, Children, and Youth
- ***Ethiopian Electric Utility (EEU).*** The EEU is the state-owned provider of on-grid electricity in Ethiopia, with accompanying responsibility for implementing state-owned minigrids.
- ***Petroleum and Energy Authority (P&EA).*** The P&EA is responsible for regulating the energy industry in Ethiopia, including minigrids.
- ***Rural Electrification Fund (REF).*** The REF is responsible for providing technical and financial support for rural electrification in Ethiopia, including deployment of minigrids.

- ***Federal Cooperative Agency (FCA).*** The FCA is responsible for oversight and support of the activities of cooperatives, including minigrid deployment and operation, subject to regulations of the P&EA.

3.2 Academic and educational

- ***Addis Ababa Institute of Technology (AAiT)*** **at Addis Ababa University. AAiT is the leading institution for higher learning on engineering and power-sector management in the country.**

3.3 Development partners supporting renewable minigrids in Ethiopia

Numerous international development agencies are already working on various aspects of renewable minigrid development in Ethiopia.

- World Bank (WB)
- *Access to Distributed Energy and Lighting in Ethiopia (ADELE)* project. ADELE is the largest and most ambitious project on off-grid electrification in Ethiopia. ADELE has a total budget of $500 million, including an investment budget of $270 million specifically for solar minigrids, plus $25 million for technical assistance on off-grid electrification across both minigrids and solar homes.
- African Development Bank (AfDB)
- *Africa Mini-Grid Market Acceleration Programme (AMAP)* project. AMAP has four focal areas: i) Opening New Markets (designing bankable, national mini-grid acceleration programmes to attract public and private investment, including creation of digital platforms); ii) Catalytic Support (developing new financial de-risking instruments for mini-grid investments and providing technical assistance to unlock private investment); iii) Strengthening the Ecosystem (expanding knowledge sharing, innovation capacity, and technical skills across a broad range of industry actors), and; iv) Programme Management.
- GiZ
- *Energising Development Ethiopia (EnDev)* project. EnDev focuses on cooperative minigrid development, including pilots, policy development, and associated productive use.
- Rockefeller Foundation
- *Smart Power Africa* project. Smart Power Africa is a multi-country initiative to increase access to affordable clean electricity across Africa. This project supports research and pilot minigrids in Ethiopia.
- ***Rocky Mountain Institute (RMI).*** RMI has provided training to EEU staff on minigrids and more recently, has been MoWE's leading partner in analyzing opportunities and designing support for productive use. RMI is also launching new work on the development and piloting of investible business models for transitional minigrids.

3.4 Nongovernmental organization on women, energy, and energy access

- ***Ethiopian Women in Energy (EWiEn)***. EWiEn seeks to support women as leaders in the energy sector in Ethiopia, through training, mentorship, and networking.

3.5 Private sector

- ***Private minigrid developers and maintenance firms.*** **Private domestic services for solar minigrid development in Ethiopia are essentially absent. All development of solar minigrids to date (12 under support of the World Bank and 25 under support of the African Development Bank) has been carried out by foreign contractors.**
- ***Agricultural cooperatives.*** Such cooperatives operate throughout Ethiopia, enabling private-sector farmers and herders to organize, pool resources, and share knowledge, thereby strengthening efficiencies, raising outputs, reducing costs, and lifting livelihoods. They are a vital source of support[17] across rural Ethiopia, with over 23 million members

3.5 Direct beneficiaries

The project preparatory team has identified numerous beneficiaries of planned AMP activity.

- Agricultural cooperatives (specific locations and entities to be determined during the Inception Period)
- Owners and employees of productive use enterprises (specific locations and entities to be determined during the Inception Period)
    - Women business owners
- Recipients of training
- Residential minigrid customers
- Social facilities receiving electricity from minigrids (schools and clinics), as well as those who work and receive services at these facilities
- Other groups of beneficiaries and affected persons
    - Local community groups
    - Women's self-help groups
    - Youth
    - Children
    - Disabled population
    - Land rights activists
    - Minority and vulnerable groups

4. Stakeholder consultation and engagement during project development

As part of the project development phase, and in addition to the desk review and data collection exercise, the PPG team of National and International Consultants identified key stakeholders and engaged with them in a series of in-person and online meetings. The purpose of these meetings was to share information about the AMP, to seek firsthand information on baseline conditions and needs, and to scope out potential project activities and partnerships. The discussions also aimed to identify the gaps that the AMP can work to fill, especially in the presence of several projects targeting energy access and renewable energy development financed by development partners besides UNDP and the GEF.

The AMP team held meetings and/or engaged in written correspondence with all of the parties listed above in sections 3.1, 3.2, and 3.3. Due to COVID-19 pandemic, the PPG Team Leader was not able to perform a field mission to meet with national stakeholders in-person. Most engagements were therefore

[17] https://allafrica.com/stories/202106300739.html

done online. In select cases, where restrictions allowed, a hybrid approach was followed, with a meeting hosted both physically and online. The AMP also arranged for virtual meetings with multiple stakeholders in attendance at once, in order to discuss and validate proposed outputs and activities.

The AMP has not yet selected the specific localities for its planned pilot cooperative-led minigrids and associated productive use (Outputs 2.1 and 2.2). These localities will be selected from a list provided by MoWE at the inception of the project. At that point, the project will identify and connect with all local stakeholders, including both partners and beneficiaries.

5. Stakeholder Engagement Program (SEP)

5.1 Purpose and objectives

The overall objective of the stakeholder engagement program is to achieve a transparent decision-making process with greater input from stakeholders and their support of the decisions that are taken. The program seeks to define a technically and culturally appropriate approach to consultation and disclosure.

The goal of this SEP is to improve and facilitate decision making and create an atmosphere of understanding that actively involves project-affected people and other stakeholders in a timely manner, and that these groups are provided sufficient opportunity to voice their opinions and concerns that may influence project decisions. The SEP is intended as a useful tool to guide communications between the AMP project and stakeholders.

In design, development of business models, and operations, minigrids require continuous collaboration between operators and end-users. In the design of the pilots under the AMP in Ethiopia, it will be vitally important to understand not only the needs and priorities of mini-grid system operators, but also the needs and priorities of the communities in which the minigrids will be located, to obtain the necessary local support and ensure sustainability and longevity of the intervention.

Furthermore, the enhancement of the commercial viability of solar PV systems depends on the level of flow of information between stakeholders from the private sector and decision makers in the public sector. This flow will guarantee that the decisions made are well-informed and constitute the best use of resources to serve the best interest of the country and beneficiaries. The flow will also guarantee that investors, developers and mini-grid system operators are actively engaged in the continued development of regulations governing the energy sector before they become legally binding and are given the opportunity to utilize their technical expertise in the formulation of national plans and laws aiming to increase energy access rates and elevate the living conditions for populations in the rural areas.

The program therefore notes the methods and channels through which to disseminate project information as well as to ensure regular, accessible, transparent and appropriate consultation. The scope and frequency of communication will be tailored to the identified stakeholder list and the initial analysis of levels of interest for each stakeholder. Accordingly, stakeholders with a high level of interest will be actively engaged, while others may receive less frequent and more targeted updates.

5.2 Engagement methods and communication mediums

Notwithstanding the COVID-19 restrictions and social distancing recommendations, different types of engagement mediums are possible inside Ethiopia. The following list presents the main engagement mediums to be utilized by the project team during implementation to ensure continuous engagement and active participation of stakeholders.

1) In-person meetings:
    - Consultation workshops: These workshops will have a pre-structured agenda, which will be designed to present a specific result/report and discuss with stakeholders the best way forward. These workshops will also be an opportunity to gain consensus from stakeholders on a specific action plan prior to proceeding with implementation. Therefore, stakeholder consultation meetings and workshops are included in the project design as part of the main activities to be carried out by the consultants in charge of each output.
    - Interviews and focus groups: These will be conducted with different groups of indirect beneficiaries, with special attention to System Operators and NGOs, to overcome their generally low participation capacity and ensure that their input is integrated in the different stages of project implementation. The Project Manager will be responsible for ensuring that these interviews and focus groups have been conducted by the responsible consultants, as appropriate.
    - Community based consultations and focus groups: These consultations will focus on the pilot locations to identify and discuss stakeholder concerns, needs and experience/impact within the community environment, but will also extend to neighboring villages and communities. The PMU, in support from the system operator or appointed service providers, will be responsible for conducting these consultations on a regular basis and reporting to the Project Steering Committee or Board.
2) Written communication:
    - Emails: Email communication is widely used in Ethiopia to provide direct access to individuals and representatives of organizations. Emails will be used as the main tool for organizing meetings, i.e., sending invitations to participants, sending the meeting minutes after the meeting, etc.
    - Letters: Being the formal method for communication and conveying messages between public parties, letters will be requested by the project team and provided by the relevant authority, as appropriate.
    - Survey forms: Several activities under the project implementation strategy constitute undertaking a needs assessment or other types of analyses, with some involving undertaking a survey to collect information. The responsibility for the surveys is that of the consultant undertaking the analysis. However, the PMU will be responsible for supporting the project consultants with the sampling process and surveying procedure to ensure the results are as representative and inclusive as possible.
    - Project brochures and manuals to present the results of specific studies and outcomes of certain activities.
3) Online meetings and phone calls: Virtual communication is sometimes preferred since it is quicker and easier compared with email and letters, and a viable alternative to in-person meetings. Online applications and telecommunication tools will be used throughout project implementation to facilitate the work and ensure the project team has easy access to stakeholders, and vice versa.
4) Capacity development and training. Both pilot projects will provide support for small business development to the pilot communities through training and capacity building/support programs with a particular focus on women-owned businesses. Small business development support will be offered in partnership 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.

5) Other engagement activities. Another element foreseen for the pilot is making available EE cooking appliances to households. The exact scope, focus and structure will be dependent on a status quo and needs assessment and consultation with the community.

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 Ethiopia project will also use all possible opportunity, 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.

5.3 Public Disclosure of Information (PDI)

In the interest of transparency, the following measures will be established to receive feedback and to ensure ongoing communications with stakeholders (outside of a formal consultation meeting):

- A project website will be created to make available all project related information including reports, publications, events, training opportunities, etc.
- The project website will provide a facility to receive feedback and to ensure ongoing communications with stakeholders (outside of a formal consultation meeting). Additionally, a contact point within the PMU will be provided for this purpose.
- The Grievance Redress Mechanism (Section 7 below), further describes channels and opportunities for feedback and concerns to be raised.

5.4 Diversity, inclusion and gender-balance

From the social and environmental safeguards perspective, this is ensured by including at least one representative from each stakeholder group, including those representing vulnerable or disadvantaged groups.

6. SEP Implementation: Resources, Responsibilities and Timeline

The size of the project does not allow for extensive stakeholder engagement measures or dedicated staff for this purpose. Stakeholder engagement will therefore form part of the broader interactions with project stakeholders. The frequency of communication will be guided by the specific level of stakeholder interest. Specific opportunities for engagement will coincide with anticipated outputs and the development phases for deliverables and milestones towards outputs. More deliberate consultation and engagement activities will be implemented for the two pilot projects and as part of the project monitoring and reporting activities.

At the national level, project-affected, marginalized and disadvantaged stakeholders have been identified, including persons with disabilities and other disadvantaged groups as per the list of stakeholder groups provided above in this document. This list will also be completed at the local level for the pilot sites. As

relevant, the following assessments will be conducted as part of the stakeholder engagement taking into account their involvement in each project component:

- Identify limitations for understanding project information and participating in consultation process (e.g. language differences, lack of transportation, accessibility of venues, disability)
- Develop measures to support and accommodate engagement (e.g. provide information in accessible formats, choose convenient locations for consultations, ensure venues are accessible, provide transportation to meetings, change time of meetings to accommodate needs, provide facilitation and explain complex issues and terminology, provide support workers for assisting participants with disabilities, provide simultaneous interpretation (language, signing)
- There is no budget specified for SEP activities, but has been included in the budgets of related outputs, notably the interfacing for training with the regional program, National Dialogue, Community of Practice, stakeholder consultation for pilot projects and extensive data collection for the monitoring of impacts.

The anticipated stakeholder interfaces, parties responsible to lead engagement and ensuring communication to specified stakeholders as well as the frequency of communication is provided below:

Stakeholder engagement plan

#	Stakeholder category (alphabetically listed)	Engagement approach[18]	Type of Information (shared and collected)	Communication channels or methods	Frequency[19]	Responsible party for engagement
1	Academic and higher education community	Involve	Policy, regulatory, technology /industry and project developments. Training needs and training offerings.	Emails, website, webinars, workshops, community of practice events, meetings, training events	Very frequent	PMU
2	Cooperatives seeking to develop minigrids	Collaborate / Partner	Policy, regulatory, technology /industry and project developments. Pilot project developments. Update on outputs and findings. Active participation in project design and industry developments.	Progress updates, emails, newsletters, website, webinars, workshops, community of practice events, meetings, training events.	Very Frequent	PMU
4.1	Development Partner (general)	Consult	Policy, regulatory, technology /industry and project developments. Project developments. Update on outputs and findings.	Progress updates, emails, newsletters, website, webinars, workshops, community of practice events, meetings, training events.	Less frequent	PMU, Implementing Partner
4.2	Development Partner (co-financier)	Involve	Policy, regulatory, technology /industry and project developments. Pilot project	Progress updates, emails, newsletters, website, webinars, workshops,	Frequent	PMU, Project Board, Implementing

[18] Inform (provide stakeholders with balanced and objective information to assist them with understanding developments, progress, issues, opportunities and solutions). Consult (obtain feedback from stakeholders on design, findings, analyses, options and/or decisions). Involve (Work directly with stakeholders throughout the process to ensure concerns and/or views are consistently understood and considered. Collaborate (Collaborate with stakeholders as partners throughout the process, including in the analyses and development of solutions and in making decisions).

[19] Where Very frequent is likely to be ongoing or at least once a month, Frequent is likely to be monthly to quarterly, Less frequent: once or twice a year and Occasional: on an ad hoc basis, but with all general information readily available for access.

#	Stakeholder category (alphabetically listed)	Engagement approach[18]	Type of Information (shared and collected)	Communication channels or methods	Frequency[19]	Responsible party for engagement
			developments. Update on outputs and findings. Active participation in project design details and alignment / interface requirements, as relevant for areas of co-finance.	community of practice events, meetings, training events. If interested, may participate in Project Board / Steering Committee.		Partner, National Dialogue
5	Energy sector suppliers and contractors	Involve	Policy, regulatory, technology /industry and project developments. Project developments. Update on outputs and findings. Invite inputs on design and sector developments.	Interviews with stakeholder representatives, Surveys, polls, and questionnaires, Public meetings, workshops, and/or focus groups with specific groups. Training and knowledge sharing events. Community of Practice.	Less frequent	PMU, identified project partners and AMP Community of Practice
6	Environmental advocates	Consult	Policy, regulatory, technology /industry and project developments. Project developments. Invite questions, concerns and inputs on risks, opportunities and developments.	Interviews with stakeholder representatives, Surveys, polls, and questionnaires, Public meetings, workshops, and/or focus groups with specific groups. Training and knowledge sharing events.	Frequent	PMU, identified project partners and AMP Community of Practice

#	Stakeholder category (alphabetically listed)	Engagement approach[18]	Type of Information (shared and collected)	Communication channels or methods	Frequency[19]	Responsible party for engagement
7	General public	Inform	General information on clean energy mini-grid sector developments. Detailed information related to pilot project scope of activities. Invite questions, concerns and inputs on risks, opportunities and developments.	Newspapers, radio, website. All project information available online and from the PMU.	Occasional	PMU
8.1	Government (directly involved)	Collaborate / Partner	General information on clean energy mini-grid sector developments. Detailed information related to pilot project scope of activities. Active engagement on industry / sector development, opportunities, roadmap / vision.	Part of Project Board / Steering Committee, progress updates, emails, newsletters, website, webinars, workshops, community of practice events, meetings, training events. Recipients of training and capacity building.	Very frequent	PMU, Project Board
8.2	Government (less directly involved)	Consult	Share general information on clean energy mini-grid sector developments. Consult regarding opportunities for collaboration and coordination.	Emails, website, webinars, newsletters. Invite to knowledge sharing events. Interviews / meetings with stakeholder representatives.	Less frequent	PMU, Implementing Partner

#	Stakeholder category (alphabetically listed)	Engagement approach[18]	Type of Information (shared and collected)	Communication channels or methods	Frequency[19]	Responsible party for engagement
			Invite questions, concerns and inputs on risks, opportunities and developments.			
9	Human rights protection / Law defenders	Keep informed	General information on clean energy mini-grid sector developments. Invite questions, concerns and inputs on risks, opportunities and developments.	Newspapers, radio, website. All project information available online and from the PMU.	Occasional	PMU
10	Impacted communities	Involve (potentially partner)	Detail pilot project information, design information and consultation on design elements, needs assessments, priorities, etc. (Specific focus on youth, women and other vulnerable or marginalized groups that are identified).	Interviews with stakeholder representatives, surveys, polls, and questionnaires, Public meetings, workshops, and/or focus groups with specific groups (youth, women, etc.) Compliance with government and UNDP stakeholder consultation / project disclosure with appropriate disclosure periods, as relevant.	Very frequent	PMU, Project Board, Implementing Partner
11	Land rights	Keep informed	General information on clean energy mini-grid sector developments.	Newspapers, radio, website.	Occasional	PMU

#	Stakeholder category (alphabetically listed)	Engagement approach[18]	Type of Information (shared and collected)	Communication channels or methods	Frequency[19]	Responsible party for engagement
			Invite questions and inputs on risks, opportunities and developments.	All project information available online and from the PMU.		
12	People with disabilities	Keep informed	General information on clean energy mini-grid sector developments. Invite questions and inputs on risks, opportunities and developments.	Newspapers, radio, website. All project information available online and from the PMU.	Occasional	PMU
13.1	Regulatory bodies (energy and minigrids) Includes the P&EA and FCA	Collaborate / Partner	General information on clean energy mini-grid sector developments. Detailed information related to pilot project scope of activities. Active engagement on all aspects of overall project, industry / sector development, opportunities, roadmap / vision.	Likely owner of PMU and therefore project information. Reporting to Project Board / Steering Committee, progress updates, emails, newsletters, website, webinars, workshops, community of practice events, meetings, training events.	Very frequent	PMU, Project Board, Implementing Partner, National Dialogue
13.2	Regulatory body (Environment, other)	Consult	General information on clean energy mini-grid sector developments, highlighting specific matters with regulatory scope or area of interest.	Emails, website, webinars, newsletters. Invite to knowledge sharing events.	Frequent	PMU, Project Board, Implementing Partner

#	Stakeholder category (alphabetically listed)	Engagement approach[18]	Type of Information (shared and collected)	Communication channels or methods	Frequency[19]	Responsible party for engagement
			Invite questions and inputs on risks, opportunities and developments.	Interviews / meetings with stakeholder representatives. Consult with regards specific regulatory aspects.		
14	Sustainable energy sector	Consult	Policy, regulatory, technology /industry and project developments. Project developments. Update on outputs and findings. Invite inputs on design and sector developments.	Interviews with stakeholder representatives, Surveys, polls, and questionnaires, Public meetings, workshops, and/or focus groups with specific groups. Training and knowledge sharing events. Community of Practice.	Less frequent	PMU, identified project partners and Community of Practice
15	Women	Consult	General information on clean energy mini-grid sector developments, highlighting specific relevance to women equity and empowerment. Invite questions, concerns and inputs on risks, opportunities and developments.	Specific gender engagement as captured in gender action plan (Annex 11). Pilot project beneficiaries as detailed for Impacted communities. Women in general: newspapers, radio, website and targeted communication to	Less frequent	PMU

#	Stakeholder category (alphabetically listed)	Engagement approach[18]	Type of Information (shared and collected)	Communication channels or methods	Frequency[19]	Responsible party for engagement
				national women's organizations. All project information available online and from the PMU.		
16	Worker unions	Keep informed	General information on clean energy mini-grid sector developments. Invite questions, concerns and inputs on risks, opportunities and developments.	Newspapers, radio, website. All project information available online and from the PMU.	Less frequent	PMU
17	Youth	Keep informed	Policy, regulatory, technology /industry and project developments. Training and/or career opportunities.	Newspapers, radio, website. Pilot project beneficiaries as detailed for Impacted communities. All project information available online and from the PMU.	Less frequent	PMU

In implementing the SEP, the following requirements will apply:

- All communication will be available in English and Amharic. 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 other local languages.
- 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.

7. Grievance Redress Mechanism

As part of the project's compliance with the UNDP SES requirements, the project shall ensure setting up a suitable Grievance Redress Mechanism (GRM). This includes a procedure for stakeholders and affected communities to express their grievances and communicate their concerns and recommendations to the project team, as well as a procedure for the project team to address these grievances by taking the necessary actions, i.e. providing clarifications, opening investigations, or making changes to the project's implementation plan as may be required.

In the area of ensuring open communication on grievances, the project intends to implement the following measures:

1) Two boxes will be installed at the pilot project sites. The first will be placed inside the pilot boundaries while the second will be located outside the project boundaries. These boxes will be checked on a regular basis by the system operator to check for new comments from stakeholders.
2) A dedicated email will be established or earmarked for stakeholders to use for questions, recommendations and grievances. The email address will be made available on all printed material, in the email signature of the PMU team and displayed on the sign carrying the name of the pilot projects.
3) The contact details for the project officers will be displayed at several central locations around the pilot locations, i.e. community centers at villages receiving electricity from the pilot project and nearby villages as appropriate.

The responsibility of responding to or addressing the grievances received will depend on the nature of the grievance. Nevertheless, the PMU will be responsible for following up until actions are taken to close a grievance, including communicating with relevant persons and/or authorities on behalf of the project.

While it is not anticipated in Ethiopia, it should also be clarified to all relevant parties at pilot sites that there will be zero tolerance for any reprisals or retaliatory actions against any stakeholders. Should it be necessary, preventative and response measures specific to the circumstances should be identified together with relevant stakeholders. Measures may include respect for confidentiality; adjustments to means and timing of communications, meetings, transportation; use of trusted intermediaries, interpreters, facilitators and other consultants; clear response protocols for notification, reporting, and support for protection strategies.

All stakeholders should also be informed of the availability of UNDP's Accountability Mechanism (Stakeholder Response Mechanism, SRM, and Social and Environmental Compliance Unit, SECU) as additional avenues of grievance redress.

8. Monitoring and Reporting

Output 4.4 calls for annual progress reporting to include monitoring of any gender, environmental and social risks and related management plans. The need for social (including gender and youth) and environmental impacts to be baselined and tracked is also included as a priority under the respective pilot projects. Engagement for monitoring and reporting will take the approach detailed under Section 5.2, as relevant for each stakeholder group and data integrity. Feedback from stakeholder engagements will be reported back to project-affected and broader stakeholder groups using a relevant channel or media which may include verbal feedback, tailored newsletters/bulletins or sharing of social and environmental assessment reports or monitoring reports.

As project information changes, the SEP should be reviewed and modified accordingly to ensure its effectiveness in securing meaningful and effective stakeholder participation. Hence, the SEP presented in this document will undergo further review and development by the project team throughout the project lifetime. Similarly, the scope and focus of the SEP will be modified to reflect the lessons learned from the implementation of SEP in Ethiopia, but also in other national projects participating in the AMP program. Equally important is the review and update of SEP procedures based on the feedback received from the Project Board and stakeholders.

Annex 10 (Environmental and Social Management Framework) is submitted separately.

Annex 11. Gender Analysis and Action Plan

1. Introduction

This gender analysis report aims to provide an overview of the gender-related gaps and opportunities for the Africa Minigrids Program (AMP) in Ethiopia. This project has an objective of increasing renewable energy access and productive use opportunities to more than 31,000 beneficiaries, of whom 50% are expected to be women. The findings of the gender analysis are intended to guide the meaningful contribution of the AMP's interventions, not only in improving electricity access and environmental outcomes but also in contributing to gender equality in the off-grid energy sector in Ethiopia.

The gender analysis was framed based on GEF/UNDP guidance [20] on gender equality and women's empowerment and which references GEF-7 programming directions and focuses on identifying gender related gaps and opportunities in three areas: access to and control over resources, patterns of decision making and participation in environmental governance, and access to socio-economic benefits and services. Under this general guidance, this gender analysis report identified and organized gender issues across all four AMP components and their planned outputs.

2. Methodology

Gender analysis is an analytical and systematic process that makes it possible to identify, understand and describe gender-based differences and the relevance of these differences to specific activity. The findings inform strategic entry points in the project to ensure equal opportunities for women and men to participate in, contribute to and benefit from GEF-financed activities. Furthermore, it intends to highlight the baseline on which the project builds and determine the scope and type of gender-transformative activities that are included along the project implementation cycle.

The methodology applied to conduct this gender analysis includes:

1. Review of previous studies conducted by UN Agencies, various Governments, and non-government institutions
2. Review of policy and legal documents related to gender equality and energy development sector
3. Primary data collected through 5 key informant interviews with MOWE and EEU gender experts, EWiN and GIZ
4. Four rounds of stakeholder consultations (with GIZ, World Bank, EEU, MOWE)

Findings of the gender analysis are organized such that that high level socio-demographic status along with global gender indicators are described first, followed by results of review of policy and legal frameworks. Gender issues in the overall energy production, distribution and use are also described in detail, leading to the presentation of specific findings under each Components, with notes on relevance and action items linked to individual outputs.

It is important to note that this gender analysis is by no means representative of the overall context of the gender dynamics, institutional readiness, status of implementation of policy and legal frameworks across the country which substantially differs across the regions.

[20] Guidance to Advance Gender Equality in GEF Projects and Program 2017

3. Social, Demographic, and Economic Aspects of Gender

Ethiopia is a landlocked country in the horn of Africa covering 426,400m2 with an estimated population of 114 million in 2020[21] making the country the second most populous next to Nigeria in the African continent. The country is divided in to 10 regions and 2 city administrations. The average population density is 112 persons/km2. A large majority about 80% resides in the rural areas, but there is a strong trend toward rural-urban migration. The average household size is 5 and 5.3 individuals in urban and rural areas respectively, with marked regional variations.

Females account for 50.8 percent and males 49.2 percent of the total population. Youth under the age of 30 currently represent 70% of the population. Average age at first marriage is 17.1 for girls and 21 for boys, with a significant difference between rural and urban areas[22]. An estimated 6.5 percent of marriages in Ethiopia are polygamous [23] and 23% of households are headed by women.

The average life expectancy at birth for males was 64 years and for females 67 years old in 2016[24]. The country is also highly diverse, with more than 83 ethnic groups characterized by the practice of traditional and religious life styles which mostly give lower status and privilege to women and girls as compared to men and boys. These disparities apply across many aspects of life, such as decision making and access to opportunities such as education. Self-reported literacy (for reading and writing in any language) is 59% for males and 43% for females[25].

Agriculture is the main economic activity for the working age population in Ethiopia, accounting for 73 percent of total employment and about 37 percent of GDP[26]. The activity is characterized by rain fed small holder farmer, less use of technology and overall limited productivity. There is also a huge gender divide in land holding, access to agricultural inputs and control over produces where women despite their contribution remain disadvantaged and invisible in the economy. Over 70% of agricultural labor in Ethiopia is contributed by women.

Ethiopia is ranked 43rd out of 145 countries in the Women's Economic Opportunity Index (WEOI), which reflects three elements: the participation gap, the remuneration gap and the advancement gap. Labor force participation for females stands at 79.9 percent and for males, at 90.3 percent. The female to male ratio for employement is 0.88 with a 0.885 score. Ethiopia ranks 95th in wage equality for similar work with a female to male ratio of 0.59 and a 0.588 score.

Ethiopia is one of the fastest growing economies in sub-Saharan Africa, but still the country ranks 173rd out of 189 countries, with a Human Development Index (HDI) of 0.463 (0.424 for female, 0.501 for male)[27]. The global gender gap report, which measures gender based gaps in four dimensions (health and survival, economic participation, education attainment and political empowerment), indicates that the country ranked 82nd out of 153 countries in the overall score. This same report notes that Ethiopia has been able to close 70.5% of the gender gap since 2006 to 2020[28].

[21] Central Stastics Authority 2019
[22] Ethiopia Demographic Health Survey 2016
[23] Organization for Economic Co-operation and Development [OECD], 2012
[24] World Health Organization (WHO) 2016
[25] Ethiopia Socioeconomic Survey. CSA and World Bank 2015-16
[26] ibid
[27] ibid
[28] World Economic Forum. Global Gender Gap Report 2020

Even though Ethiopia is progressing well in reducing poverty and gender inequality, many development gaps still need to be filled in the country. One key area is access to energy, which is the one of the key development ingredients for transformation of economies and betterment of human life.

4. National Policy, Legislation, and Institutional Context on Gender and Energy

Globally, the commitment to gender equality in the energy sector has been reflected in both SDG 5 and 7. A review of the 2017 report by the International Union for Conservation of Nature (IUCN) reported that only a third of the 192 national energy frameworks reviewed included any references to women and/or gender[29] . A follow-on review noted that nearly three-fourths of the 45 documents from 29 Sub-Saharan African countries reviewed considered gender to some extent within their principles, objectives, strategies or activities. A review by UN Women and UNDP-UNEP PEI shows a positive trend, where energy policies acknowledged the need for enhancing women's participation in policymaking and decision-making in the sector.[30]

Ethiopia's full commitment for gender equality and empowerment of women in all sphere of life has been demonstrated by ratifying several international, regional, sub-regional legal instruments on human rights and gender. The major ones related to gender and energy sector are the following:

- **Convention on the elimination of all forms of discrimination against women (CEDAW)**: Ethiopia ratified this convention in 1982. Provisions set a clear Government mandate to ensure the full and equal participation of women in all policy formulation and decision making.
- **Beijing Declaration platform for action 1995:** Ethiopia was among 189 countries that unanimously adopted this landmark declaration to advance women's rights. The issue of women and the environment is highlighted as one of 12 critical areas of concern, with pointed mention of the plight of millions of women collecting firewood to meet energy demands from the diminishing environment and a call for access to clean energy.
- **Sustainable Development Goals 2015- 2030**: Ethiopia is exerting maximum effort to guide its development path aligned with SDGs particularly Goal 5 (Gender Equality) and Goal 7 (clean, affordable and sustainable energy.) The country voluntarily reports on progress on SDGs.
- **The African Renaissance agenda 2063**: This is a master plan for transforming Africa to a global powerhouse. Ethiopia, as a long-standing member of the African Union, shares the aspirations and goals in relation to full gender equality in all spheres of life and environmentally sustainable and climate resilient economies.
- **Article 35 of the Ethiopian Constitution (1995**) reiterates principles of equality of access to economic opportunities, including the right to equality in employment and land ownership among men and women.
- **The Revised Family Law (2000):** This grants spouses equal rights in the management of the family and recognizes the equal rights of a married woman to possession and administration of personal property. It allows for joint user right and administration of land and property in marriage.
- **Revised Criminal Code (2005)**: This code has served as a landmark for gender equality. It criminalizes domestic violence, rape, harmful traditional practices (HTPs) such as female genital cutting, abduction and early marriage.
- **Labour Proclamation No. 42/1993**: This proclamation has explicit provisions that protect women against discrimination in employment and payment, as well as protect pregnant women. A

[29] International Union for Conservation of Nature (IUCN)2017 and 2018

[30] Gender and Electricity Policy Making in India, Nepal and Kenya 2017

recently introduced **Proclamation No 10/64** requires the establishment of day care centers in all forms of institutions.

- **Environment Policy of Ethiopia (1997):** The policy recognizes the need for empowering women to enable their full participation in population and environmental decision-making, resource ownership and management; and facilitate the participation of women across all sections of society in training, public awareness campaigns, formal and informal education and decision making in environment and resource management.
- **Energy Policy of Ethiopia 1994 –**The major objective of the policy is to support development of energy sources for economic growth and replace the major share of traditional biomass as source of energy to modern energy sources. It stipulates the necessity of providing support and incentives for the participation of private sector and community, particularly women, in the development of energy.
- **Growth and Transformation Plan II (2015-20)**: This plan includes a specific pillar on Women and Youth Empowerment to ensure their effective participation in the development and democratization of process enable them to equitably benefit from the outcomes of development.
- **The Ethiopian Women, Development and Change Strategy, developed in 2017/18** aims to increase women's economic empowerment by addressing high rates of unemployment and informality and ensuring urban job creation and food security for women.
- **Ethiopia's Climate Resilient Green Economy Strategy 2011**: The strategy envisions Ethiopia achieve the middle income status by 2025 in a climate resilient green economy. Among the four priority initiatives for immediate investment, the two most closely aligned with the AMP are infrastructure financing (mainly electricity) and rural energy efficient stoves. These interventions target rural households, with the potential for massive positive impact on income, health, education and the empowerment of women while decreasing GHG emissions.
- **National Electrification Program 2019 (NEP 2.0)–** focuses on expanding integrated grid and off-grid access to 35% of the population and provides an implementation framework for the achievement universal access by 2025. NEP 2.0 explicitly acknowledges gender gaps in the institutional leadership, addressing gender-based violence and establishing day care facilities for female employees returning from material leave. A technical steering committee at the Ministry of Water and Energy (MoWE) is established to deal with gender equality issues.

Institutions

Beyond ratifying conventions and enacting policies and legal frameworks, the Government has been making considerable progress in setting up institutional structures and placing trained professionals to realize gender equality in all sectors. Accordingly, MOWE created its Women, Children and Youth Affairs Directorate in 2014 to promote gender equality, institutionalize gender mainstreaming and advocate for the rights of women employees. Similar institutional arrangements have been created in the Ethiopian Electric Utility (EEU). In the EEU, three full-time gender experts sit in the CEO's office, indicating the perceived importance of gender within the EEU.[31]

Despite the existence of institutional mechanisms, stakeholder outreach indicates there are many gaps in terms of the internal coordination with other directorates to influence policies, planning, programing, monitoring and evaluation. Capacities are also limited within the directorate on how to systematically push the gender equality agenda across the Ministry thematic focus areas. The participation of women in policy-making, particularly in energy sector, is not visible. According to a representative of the WCYA

[31] ibid

directorate, there are few moments when their directorate is engaged in the policy development process, partly due to the perception about deficiencies in the directorate's capacity to articulate issues and shape policy agendas. In terms of staff composition, few women are found at professional level and more number of female staff work in non-professional general support, which includes cleaners, office assistants and secretarial work.

5. Patterns of Gender Division of Labor

Eighty-five percent of the Ethiopian population lives in rural areas where agriculture is the main livelihood. Patterns of gender division of labor in rural agricultural contexts exhibit similarities across the country. Almost all household roles such as cooking, fetching water, firewood collection and childcare are held by women. The role of men concentrates around managing farming fields, which includes ploughing, sawing, harvesting, and selling surplus produce. Women have additional roles in the agricultural fields such as weeding, post-harvest collection, barn cleaning, milk processing and backyard gardening. As compared to men, women are overburdened with both household and farm level activities, spending an average of 13-14 hours in performing various activities. While men spend 6-8 hours on manually laborious activities, they have better rest and leisure time[32].

In pastoralist areas where 18% of the population live, women play an immense role in sustaining family life by cooking, fetching water, collecting firewood taking care of children and small animals. They are responsible for building temporary housing and trading milk and goats. Men usually are responsible for tending livestock, identifying and protecting water points. During the dry season they usually travel long distances in search of pasture and water for their animals.

In the urban context, women play various roles. Those few women in the formal sector shoulder a triple burden of working in their formal job, performing household chores, and serving as leaders in community groups and networks. Women in urban areas are also actively engaged in small business, including street vending. More men, on the other hand, are active in formal and informal jobs, earning better income. They spend few hours in cooking and childcare, but such trend is changing among young adults because of the adoption of an urban lifestyle.

6. Access to and control over resources and basic services

In Ethiopia, access to basic social services such as education, health and communication services demonstrate disparities in various dimensions, including gender. Education-wise, in 2016 nearly half of women (48 percent) and 28 percent of men age 15- 49 had no education.[33] The country has increased net primary enrolment rates from 51 per cent in 2003/04 to 95 per cent in 2016/17. But gaps persist in enrollment and completion of secondary school and above. The gender parity index (GPI) for primary education stood at 0.91 and for secondary education, 0.87 in 2019.[34] Only 25 percent of secondary school-aged girls are attending secondary school, and an estimated 10 percent go on to enroll in college[35]. Various factors contribute to such disparity, particularly in rural areas. Prevalent social norms that give less value to girls education contributing to child marriage, responsibility for household chores that limit their time

[32]Oxfam Ethiopia Rapid Care Work Analysis in three Woredas, Oromia Region Ethiopia 2017
[33] Central Statical Authority Ethiopian Demographic and Health Survey 2016
[34] Federal Democratic Republic of Ethiopia, Ministry of Education Statistics Annual Abstract, 2020
[35] UNICEF Fact Sheet on Girls Education in Ethiopia 2018

for study, limited availability of water and sanitiation facilities in schools, and the experience of gender based violence all contribute to high rates of girls dropout.

Access to essential health care services has shown steady progress in the past decades due to increased investments in the health workforce and infrastructure. As a result, the country has achieved commendable result in reduction maternal and child deaths, controlling communicable diseases and raising life expectancy. However, still the maternal mortality rate is considered very high, at 412 deaths per 100,000 live births. The mortality of under 5 children was estimated to be 51/1000.[36] Furthermore, 64 percent of the population have access to improved water sources while only 6.3 percent of the population have access to improved sanitation[37]. Women and girls suffer more in all instances particularly in relation to access to sanitary/hygienic and maternal health related services.

Ethiopia is one of the countries in East Africa with least access to communication services, which are exclusively delivered by the Government with no engagement of private sector. Only 19 percent of the population have access to the Internet. Mobile cellular subscription stands at 37 percent.[38] Here too, the gender gap is also identified to be huge: there is a 20-percentage difference in mobile ownership between men and women.[39] Only 28 percent of households have a radio, and 14 percent have a television. Having access to the internet, mobile phone and media brings a wider range of benefits while among those few who are able to access them. Men and boys enjoy the benefits more in terms of having information of all types, utilization of financial services and staying connected with social networks.

Access to land and key economic resources and opportunities

In Ethiopia, land is owned by the Government and people have user rights for an indefinite period. It is impossible to transfer the land holding to others in sale or exchange. User rights are transferred mainly through inheritance and transfer land user rights. Historically, women are excluded from both types of rights as inheritance is traced paternally. Women have access only to the produce from the land. In case of divorce, they totally lose such rights.

In the past two decades, transformative actions have been taken by the Government to modernize land registration and demarcation systems. These changes have brought significant changes for rural women, guaranteeing their access and control over land rights through the issuance of certificates along with their husbands securing compulsory tenure right. Furthermore, the Federal Rural Land Administration and Land Use proclamation No 456/2005 demands community participation in land use and administration at the local level through setting up of a land administration committee in each of the Kebeles,40 including at least two female members out of the five total members. This Kebele level committee is responsible for supporting the facilitation of land demarcation, land administration and solving land related disputes at the Kebele level. Through such efforts women's equal access to and control over land has shown great improvements. Still, many complexities persist at implementation level in the different regions, including pastoralist contexts. The full realization of tenure security for all women in Ethiopia is yet to be achieved.

Beyond land ownership issues, studies show that in rural agricultural contexts, women have limited access to agricultural inputs such as extension services, farm inputs, market information and financial services. Interventions target men with better literacy level, businessmen and head of the household, based on a

[36]ibid
[37] UNICEF Water, Sanitation and Hygiene in Ethiopia 2018
[38]International Communication Union (ITU)/World Telecommunication/ICT indicators database 2017
[39] The Mobile Gender Gap Report 2021
[40] "Kebele" is the smallest administrative unit in Ethiopia

perception that "men are farmers and heads of the household" while women contribute 75% of the agricultural labor[41]. Furthermore, women's independent membership in the agricultural cooperatives and unions has been found to be minimal, including in leadership positions, due to inability to pay premiums, perceived benefits from husband's membership, and limited knowledge about the benefits of being member. Female-headed households are the most disadvantaged in access to such opportunities and the most food insecure in Ethiopia compared to male headed households.[42]
The most common types of crops grown in Ethiopia are cereals, pulses, oil seeds and coffee. Evidences show that along the value chains of each of these crops, men and women play a variety of roles and enjoy benefits in unequal manner. Studies show that women are not considered as key value chain actors, and as a result, are excluded from accessing technologies, skills, inputs, decision making on price and market information in both horizontal and vertical value chains. Despite their contributions in the production of each crop, the control by women over the income is minimal and concentrates around crops that fetch less market value[43].

In pastoralist contexts, land is communally owned, and clan leaders oversee decision making process through consultations, and land is managed by customary laws. Pastoralist women have limited voice and access to such decision-making process, but they access communal land and other natural resources. Livestock is the major economic resource. Men manage and control high value livestock such as cattle and camel. They also have control over the income generated from selling these animals while women have more control over small animals such as goats and milk products such as ghee.
In general, millions of women and girls in agricultural, pastoralist and urban context of Ethiopia have limited access and control over land and other economic resources. Therefore, active, intentional gender-responsive intervention from the AMP hold great potential to benefit this disadvantaged segment of the population.

Access to clean energy

In Ethiopia, 89 percent of energy demand is met by traditional energy sources -- mainly biomass in the form of fuel wood, charcoal, branches, dung cakes and agricultural residues. The remaining 11 percent is from electricity and petroleum[44]. Most of the energy produced and consumed at household level is for cooking purposes. With this massive biomass dependency for household energy needs, the country is losing 8 percent of its forests annually. and land degradation is very common.
Due to culturally ascribed gender roles, women and girls contribute the largest share to energy production from biomass in Ethiopia. They collect fuel wood from nearby or far forests, collect cow dung and prepare dung cakes and contribute big share in handling and storing agriculture residues. Time use survey shows 22% and 36% of urban and rural households spend more than 2 hours per trip to collect firewood respectively.[45] Beyond this most rural women use the energy produced for cooking in open fire, three stone methods which is the most energy inefficient and risky for their health. The

[41]Empowering Women through agricultural development in Ethiopia 2017
[42]Negesse, A., Jara, D., Habtamu Temesgen et al. The impact of being of the female gender for household head on the prevalence of food insecurity in Ethiopia: a systematic-review and meta-analysis. Public Health Rev 41, 15 (2020). https://doi.org/10.1186/s40985-020-00131-8
[43] Aregu L., Puskur R. and Sambrook B.The role of gender in crop value chain in Ethiopia accessed here https://core.ac.uk/download/pdf/132637186.pdf
[44]Review of Policies and Strategies Related to the Clean Cooking Stoves in Ethiopia 2018. MFCCC, SNV, Kingdom of Netherland
[45] Time use Survey 2014 Central Statistical Agency Ethiopia

preparation of typical Ethiopian bread (injera[46]) requires teff flour and is baked on a special clay pan and eaten with various types of stews. All steps are made in an open fire method. As a result, the time lost to collect firewood, travels made looking form grain mills and cooking is so significant and impacted the lives of millions of women in girls immensely. Moreover, only 3.5 percent of women in Ethiopia have access to clean fuel and technologies for cooking, while access to clean water stands at less than 25 percent.

Empirical evidence shows that women are disproportionately affected by energy deficiency drudgery associated with collecting firewood and fetching water, the burden of carrying out household chores without adequate light or using traditional lamps, discomfort in studying for students, and safety concerns related to mobility in the absence of community lighting (van de Walle et al. 2015; Rewald 2017).

It is undeniable that in the 21st century access to electricity is a basic ingredient to any form of social and economic development. However, in Ethiopia, with its population of about 115 million, about 55-60 percent of the households have no access to electricity. The grid connected population accounts for 33.1 percent and off-grid connected represents 23 percent. The lack of access to electricity is most pronounced in rural areas (See Section 1, Development Challenge, of this Project Document.)

In energy sector, especially mini-grids, gender gaps exist in access to awareness about economic potential of mini-grids, opportunities of learning skills and developing capacities to establish mini-grids, access to finance and entrepreneurship for investing in mini-grids and socio-culturally innate perspective that electricity, like transport and infrastructure, is a sector more suitable for men than women. However, gender gaps in accessing finance and entrepreneurship are the most challenging as demonstrated by research[47]. To fill such gaps attempts have been made by the World Bank and the Development Bank of Ethiopia. DBE's Energy Efficient Product Credit Line organized a workshop in February 2017 with all Microfinance Institutions (MFIs) engaged under its credit line to map barriers and opportunities to address the gender gap. Since, then various similar initiatives have been taken by the government and partners.

Also, as part of the technical assistance for MFIs under the DBE credit line, a specific module focused on reaching more women with financing solutions has been delivered in January 2019 to all MFIs actively engaged in consumer finance aspects of off-grid. The training focused on the business cases for reaching women, case studies globally on what works and designing new approaches that focus on women as target market segment. Results of all these efforts have yet to be formally compiled, but anecdotal observations reveal that the right interventions are in place.

Access to electricity by rural smallholder farmers improves productivity and opens new business opportunities. In this regard, a recent study by Rocky Mountain Institute identified six agricultural production and processing opportunities for rural areas in Ethiopia. These areas include horticulture irrigation, grain milling, injera baking, milk cooling, bread baking, and coffee washing. To varying degrees, all of these areas demonstrate great potential to capture productive use dividend[48]. A closer scrutiny of the position of women and men along these identified opportunities reveal that huge potential is ahead to transform the lives of women in rural areas as each of these types of business are run by women. But

[46] Injera is a sour fermented flatbread with a slightly spongy texture, traditionally made out of teff flour in Ethiopian and Eritrean cuisine, and some Somali cuisine

[47] ibid

[48] Borgstein, E., Wade, K., and Mekonnen, D. Capturing the Productive Use Dividend: Valuing the Synergies Between Rural Electrification and Smallholder Agriculture in Ethiopia, Rocky Mountain Institute, 2020. http://www.rmi.org/insight/ethiopia-productive-use/

thorough analysis is needed to ensure women access the benefits and equally enjoy the commercialization of their traditional gender roles.

Overall, both the government and its development partners are trying to bring gender dimensions in the minigrid sector; but a lot remains to be done to ensure sizable and balanced participation and equal share of benefit of women vis-à-vis men from the mini-grid space in Ethiopia.

7. Existing Energy Access Programs and Their Gender Focus

- Energy Sector Management Assistance Program (ESMAP) - This World Bank initiative delivered a gender analysis, high-level policy advice, and the mobilization of significant financial resources to transform gender equality across the entire US$1.8 billion World Bank energy portfolio in Ethiopia. These gaps centered on employment and leadership in technical fields, access to finance in the adoption of clean technologies, and exposure to gender-based violence in the workplace.

- **Access to Distributed Electricity and Lighting in Ethiopia** (ADELE) World Bank- This recently launched $500 million project supports investment on the off-grid sector in Ethiopia. The project commits to track data disaggregated by sex, has also focused areas of intervention on gender and citizen engagement to ensure women get access to quality, reliable and affordable off-grid household energy and public lighting to reduce energy poverty and give women and men additional income-earning opportunities.

-**Energizing Development in Ethiopia (GIZ)-** supports a sustainable supply of energy services to lower-income households, social facilities and small to medium sized enterprises with a focus on rural areas. The intervention targeted three different types of technologies: energy efficient cookstoves; photovoltaic systems; and the development of independent power supply systems (mini-grids) for remote communities. It is now in its third phase and has scored successful results and about 800 small-scale energy-efficient cookstove producers established their businesses in 330 districts in seven regions. They have sold more than 1,194,000 improved cookstoves since 2006, mostly for baking and cooking. About 1,388,456 people benefit from energy-efficient cookstoves sold under the programme. These stoves have saved almost 400,000 tons of CO2 and more than 370,000 tons of fuelwood per year.

8. Summary of Gender Analysis Findings Aligned with AMP Project Components

Project components	Gender analysis findings
Component 1 **Policy and regulations**	- As part of the national effort to mainstream gender equality issues in programs, policies and institutions the Ethiopian government has set-up institutional mechanisms in all sectors. At MOWE level, Women, Children, Youth Affairs Directorate (WCYA) established in 2014. The EEU has also WCYA Directorate with 4 dedicated staff and a strategy to promote gender equality, addressing GBV and advocate for the rights of women employees. - In 2018, Ethiopian Electric Utility (EEU) adopted gender and citizen engagement strategy with a focus on increasing leadership capacities of female staff, establishing day care center (supported by WB and IFC), Addressing GBV- sexual harassment policy development - There are efforts to engage women and youth in many different grid-focused public forums and engaging the WCYA directorate in the policy making process but the advocacy was not systematic most gender related issue in the policy making are overlooked and sometimes donor driven. - A review of NEP 2.0 reveals that the program/policy is gender aware in a sense that there is explicit acknowledgment of the implication of gender gaps in electricity a growing acceptance of gender in electricity policy making but in terms of practical action a lot remains to be done. Key informants mentioned lots of missed opportunities to integrate gender issues beyond the mere numbers. - There is no policy or operational guideline on how to integrate gender in energy sector particularly in the emerging off-grid - As mini-grid sector is an emerging segment with a huge potential to impact gender dynamics in the country, strategic engagement of WCYA in the discourse and policy making is missing link. - NEP 2.0 provides for priority connection (grid or off-grid) to locations with high economic growth potential agriculture sector—and targeted assistance for safety net beneficiaries, while ensuring gender equality in access to electricity services. As a policy this has a critical gender implication in due course complementing the potential to lift millions particularly women out of poverty.

	- NEP2.0 also focused on equity and inclusion targeting disadvantaged groups and the poor nationwide; and due consideration to ensuring customer affordability, especially for the poor and environmental and social sustainability. However, there is no operational plan or guide or tools or minimum standards set on how equity focused approaches can be implemented. This is also confirmed by a key informant who is engaged in community mobilization for mini-grid development. - NEP2.0 also promotes the development of off-grid sector through the collaboration of public and private sector - All activities will also be closely coordinated with the Safety Net and other Government programs and related Ministries (e.g.i Ministry of Agriculture), enabling local processing of agricultural products and leading to increased local value generation and job creation. - Stakeholders pushing the gender equality agenda in the electrification are – World Bank ESMAP, GIZ EnDev, and the NGO Ethiopian Women in Energy
Component 2 **Business Model Innovation with Private Sector Engagement**	- NEP 2.0 indicate the expansion of mini-grids through different business models highly likely to create new jobs, training and business opportunities for women and youth particularly for the most vulnerable under productive safety net program (PSNP) – This is still under exploration as to how and details will be included after the discussion with (GIZ) - The Anchor Business Customer model is acceptable business model by Ethiopia Government/ P&EA for mini-grid development even though not tested yet. From gender perspective the choice of the ABC business model needs to be accompanied by exploration of how much job opportunities will be created to women and youth considering their vulnerability. - NEP 2.0 indicates irrigation-based horticulture areas are found to be commercially viable areas for mini-grid development – From gender equality point of view, most women in rural context practice irrigated homestead horticulture for household consumption and for limited commercial purposes. With the potential mini-grids provide there is a tendency to increase commercial values of produces creating additional income to women but as key informants pointed out at the same time there is a risk to shift control over some types of produces by men when they become commercially worth which needs a careful scrutiny in the upcoming pilot business models. - At grass root level, there are voluntary women saving and internal lending groups called Self-Help Groups (SHG) with a huge potential to be connected with the productive use aspects of mini-grid. These

	groups run joint business such as cafes, hair salon, tailor etc and individual women can also borrow to start-up business and the availability of electricity stimulate or modernize such opportunities. But this is only possible if the mini-grid development in the locality purposefully engage these groups in connection with conventional members of microfinance - Private sector engagement status in the energy sector is at infant stage but according to NEP2.0 there are few women off-grid entrepreneurs who are able to access set-aside credit from Development Bank of Ethiopia (DBE) able to import solar home systems. - The European Union is financing five hydro mini-grids implemented by GIZ, testing a model for renewable energy–distributed generation that is currently based on cooperatives, but is aimed at scaling up the market for private or public agencies, as well as a combination of both. But all cancelled and changed to Solar mini-grids and there has been reports of some failed attempt made in the community engagement phase (needs further information and verification with GIZ) - Data on willingness to pay (MTF study) for a grid connection and a Tier 2 off-grid solar device indicates that female-headed households are less willing to pay for both energy solutions, in comparison to male-headed households. 15.5 percent of female-headed households said that they would never accept the offer of being connected to a grid and 30.5 percent were against purchasing a Tier 2 off-grid solar product at any given term. 2.6 percent and 18.6 percent of male-headed households, in comparison, said that they would buy. - According to key informant (A) the existing business model for mini-grid in Ethiopia does not take in to account the realities of vulnerable groups such as women and youth it's based on willingness to pay logic and women's voice and contexts are not as such considered. - By 2017, Ethiopia has 39 million mobile subscriptions, access to TV, radio increasing and with highest rates of maternal mortality 420/100,000, 46% of contraceptive prevalence – All linked to electrification - There are gender gaps in employment and leadership in technical fields, access to finance in the adoption of clean technologies and exposure to gender-based violence in the absence of street lighting

Component 3 **Scaled-up Financing**	- In Ethiopia, the available financing for private sector off-grid development is through World Bank and Development bank of Ethiopia. Twenty-six private sector companies are importing and selling solar products and 14 micro finance institutions are currently providing energy-financing options to households using funds. So far 170,000 rural households benefited, 60 percent of which are female headed. - Gender gaps in access to finance and entrepreneurship are being tackled in the DBE Market Development for Renewable Energy and Energy Efficient Product Credit Line (US$45 million). There was no female applicant or beneficiary from this credit line. - In order to fill this gap, DBE, WB, IFC organized half day information session to women's business associations and female entrepreneurs. In the months after the session, four female entrepreneurs have come forward to apply for a total of US$1.5 millions of funding to import off-grid technologies, from a baseline of only nine male-headed entrepreneurs accessing finance. Now there are 9 female exporters. - The second available finance is through MFIs and in 2016, 28.6 percent of loans were accessed by female applicants through MFIs which increased to 35 percent by June 2017, indicating that the gap is closing. During 2017, in- depth consultations took place with MFIs to understand their challenges in reaching female consumers. This year, women's business associations and female entrepreneurs have been engaged on the opportunities available in the off-grid sector together with the IFC and the Ethiopia Climate Innovation Center (ECIC). - The microfinance landscape in Ethiopia is rural centered, serving about 47% of the population and about 30% of finance is accessed by women. However, lending for off-grid technology represents only 1%. MFIs can also play a key role in ensuring adequate information provision to end-users and are expected to become a key ally in off-grid service provision, with positive effects on financial inclusion as well. - As part of the technical assistance for MFIs under the DBE credit line, a specific module focused on reaching more women with financing solutions has been delivered in January 2019 to all MFIs actively engaged in consumer finance aspects in off-grid. The training focused on the business case for reaching women, case studies globally on what works, and designing new approaches that focus on women as target market segment.

9. Gender Action Plan

Implementation of this plan will be the responsibility of MoWE and the Project Manager, with support from a Gender Specialist hired by the AMP across all four years of the project. See the Total Budget and Work Plan for details.

Project Outputs	Proposed Gender Action	Indicator	Responsible body
Component 1. Policy and Regulations			
Output 1.1. Output 1.1. Support for national dialogue, associated capacity enhancement and arrangements for implementation of cooperative minigrid delivery model(s)	1. Ensure the participation, perspectives and voice of women and other vulnerable groups are included in the national dialogue on cooperative minigrids, the DREI techno-economic analysis, and development of regulations and guidelines on waste management	Number and proportion of women participating in consultations	MOWE, Women Children and Youth Affairs Directorate, Project Manager, Gender Specialist, international and national consultants responsible for the respective outputs
Output 1.3. Execution of the De-risking Renewable Energy Investment (DREI) analysis for solar PV minigrids			
Output 1.4. Development of decommissioning strategy and guidelines on waste management for minigrid components.			
Output 1.5. Capacity-building for MoWE and its sectoral institutions via the MoWE Innovation Center (MIC).	2. Ensure capacity building opportunities are equally accessed by professional women 3. Include gender mainstreaming in mini grid as a capacity building area	Number and proportion of women participating in capacity-building activities Number of participants who have received training on gender-related	MOWE, Women Children and Youth Affairs Directorate, Project Manager, Gender Specialist

		issues in minigrid development	
Component 2. Business Model Innovation with Private Sector			
Output 2.1. Implementation of pilot minigrids under cooperative delivery models.	4. Integrate gender analysis and action in the cooperative minigrid planning and delivery model development process	Number of mini-grid sites that have conducted gender analysis and action planning	MOWE, Women Children and Youth Affairs Directorate, Gender Specialist
Output 2.2. Technical assistance for productive use in association with AMP-supported minigrids.	5. Deliver targeted support to women entrepreneurs in the planning and operationalization of productive use enterprises.	Number and proportion of women receiving technical assistance on productive use	MOWE, Women Children and Youth Affairs Directorate, Gender Specialist
Output 2.3. Training and higher education programs established for mini grid design, installation, operation, maintenance, and financial management.	6. Give priority to potential female students to join the apprenticeships, certificates, university programs. (This action should include engagement of the Ethiopian Women in Energy network.)	Number and proportion of female students joined the AMP supported capacity building programs	MOWE, Women Children and Youth Affairs Directorate, Gender Specialist, EWiEN, Addis Ababa Institute of Technology
Component 3. Scaled-up financing			
Output 3.1. Design support for financing and risk mitigation instruments, as well as development of operational guidance, provided for minigrid and productive use financing facility.	7. Identify and support financing of equipment to be used by women-owned business (Self-help groups should be considered)	# Women accessed equipment though the subsidized facility	MOWE, Women Children and Youth Affairs Directorate
Output 3.2. Domestic financial sector capacity-building on business and financing models for minigrids	8. Integrate gender lens in the technical training for commercial banks and MFIs on mini-grid productive use	# Participants trained disaggregated by sex	MOWE, Women Children and Youth Affairs Directorate, Gender Specialist, International Consultant responsible for this output

Component 4. Digital, Knowledge Management, and Monitoring and Evaluation			
Output 4.3: 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.	9. Ensure that all of the elements of this Gender Action Plan are included in the framework	Presence or absence in the QA and Monitoring Framework of provisions monitor all gender action indicators	Project Manager, Gender Specialist, MOWE, Women Children and Youth Affairs Directorate, International Consultant responsible for this output
Output 4.4: M&E and Reporting, including (i) Conducting inception workshop and preparing report, (ii) Ongoing M&E, (iii) Midterm Evaluation and (iv) Terminal Evaluation.	10. Ensure use of sex disaggregated data in project monitoring, evaluation and reporting, in accordance with this plan as well as the Project Results Framework	Presence or absence in project reports on gender action indicators	Project Manager, Gender Specialist, MOWE, Women Children and Youth Affairs Directorate
Output 4.5: Engage with regional project, including, but not limited to, via (i) participating in Communities of Practice and (ii) capturing and sharing lessons learnt.	11. Develop success stories and technical briefs on gender and mini grid topics	Number of success stories a technical brief produced on topics of gender and mini grids	Gender Specialist, MOWE, Women Children and Youth Affairs Directorate

Annex 12: Procurement Plan

The procurement plan covers the final months of 2021 and all of 2022. The Ministry of Water and Energy (MoWE) shall update the procurement plan at least annually throughout the duration of the project. All procurement is subject to applicable rules and procedures of MoWE and the Government of Ethiopia.

Table 1: Expected Goods and Non-Consulting Services

No	General Description	Contract Value USD (cumulative)	Procurement Method	Procured by	No of Contracts	Initiation of Procurement (quarter/year)	Fulfillment of Procurement (quarter/year)	Prior or Post review
1	Meeting space and associated catering for Inception Workshop	$3000	Request for Quotation	MoWE	1	Q4 / 2021	Q4 / 2021	Post
2	Meeting space and associated catering services for multiple convenings throughout 2022 for Outputs 1.1, 2.1, and 2.2, and 4.1	Variable; up to $500 per event	Request for Quotation	MoWE	20	Q4 / 2021	Q4 / 2021	Post
3	Equipment and furniture for office of Project Manager and Administrative/Financial Manager	$7650	Canvassing (by phone, Internet, shopping in retail spaces) and/or Request for Quotation	MoWE	1	Q4 / 2021	Q4 / 2021	Post

Table 2: Expected Contracted Consulting Services

Note: Depending on the capabilities of applicants, some consulting assignments could be bundled together.

No	General Description	Contract Value USD	Procurement Method	Procured by	No of Contracts	Initiation of Procurement (quarter/year)	Fulfillment of Procurement (quarter/year)	Prior or Post review
1	Project Manager (to be hired by Service Contract)	$2500/month	Request for Quotation	MoWE	1	Q4 / 2021	Q4/ 2021 Contract to be renewed annually throughout project implementation period	Post
2	Administrative and Financial Manager	$1000/month	Request for Quotation	MoWE	1	Q4 / 2021	Q4/ 2021 Contract to be renewed annually throughout project implementation period	Post
3	International expert in minigrid planning and pilot implementation (Output 2.1)	140,000	Request for Quotation	MoWE	1	Q4 / 2021	Q1 / 2022 Work to continue into 2023	Post
4	International expert in minigrid policy and institutions (Support for Outputs 1.2 and 1.5)	70,000	Request for Quotation	MoWE	1	Q1 / 2022	Q2 / 2022 Work to continue into 2023-25	Post

5	National expert on digital platform development (Outputs 4.1 and 4.2)	$16,000	Request for Quotation	MoWE	1	Q1 / 2022	Q2 / 2022	Post
6	International DREI consultant (execution of Output 1.3)	30,000	Request for Quotation	MoWE	1	Q2 / 2022	Q3 / 2022	Post
7	National DREI consultant (support of International DREI consultant in Output 1.3)	8,000	Request for Quotation	MoWE	1	Q2 / 2022	Q3 / 2022	Post
8	International expert on minigrid decommissioning and waste management (Output 1.4)	70,000	Request for Quotation	MoWE	1	Q2 / 2022	Q3 / 2022	Post
9	National expert on minigrid decommissioning and waste management (Output 1.4)	8,000	Request for Quotation	MoWE	1	Q2 / 2022	Q3 / 2022	Post
10	National expert in gender	$16,000	Request for Quotation	MoWE	1	Q2 / 2022	Q3 / 2022 Assignment will continue at same annual volume through 2025	Post
11	International expert in Social and Environmental Safeguards	$70,000	Request for Quotation	MoWE	1	Q2 / 2022	Q3 / 2022	Post
12	International expert in quality assurance and GHG monitoring/evaluation (Output 4.3)	$14,000	Request for Quotation	MoWE	1	Q3 / 2022	Q4 / 2022 Work to continue into 2023-25	Post

Annexes 13 (GHG emissions calculations) and 14 (Co-financing letters) are submitted separately

Annex 15: GEF Core Indicators

Core Indicator 6	Greenhouse gas emission mitigated					(Metric tons of CO_2e)
		Expected metric tons of CO_2e (6.1+6.2)				
		PIF stage	Endorsement	MTR	TE	
	Expected CO2e (direct)	13,900 (direct)	16,836 (direct)			
	Expected CO2e (indirect)	4,966,674 (indirect top-down)	4,905,000 (indirect) [49]			
Indicator 6.4	Increase in installed renewable energy capacity per technology					
		Technology	Capacity (MW)			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
		Solar minigrid	0.27 (solar PV)	0.624 (solar PV) 1.523 (MWh - storage)		

[49] 10% of the indirect GHG ER of this an all AMP national child projects have been removed from each project and allocated to the AMP regional child project, in line with the apportioning of the overall program budget and reflected in the PFD allocation of GHG emissions reductions across the different child projects. This reflects the benefits of national child projects accessing the regional child project's support which is expected to contribute and enhance the enabling conditions required for minigrids development across AMP countries.

Core Indicator 11	Number of direct beneficiaries disaggregated by gender as co-benefit of GEF investment					(Number)
			Number			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
		Female	27,974	15,813		
		Male	27,973	15,812		
		Total	55,947	31,625		

Annex 16: GEF 7 Taxonomy

Level 1	Level 2	Level 3	Level 4
☒**Influencing models**			
	☒ **Transform policy and regulatory environments**		
	☒ **Strengthen institutional capacity and decision-making**		
	☒**Convene multi-stakeholder alliances**		
	☒**Demonstrate innovative approaches**		
	☒**Deploy innovative financial instruments**		
☒**Stakeholders**			
	☐**Indigenous Peoples**		
	☒**Private Sector**		
		☒Capital providers	
		☒ Financial intermediaries and market facilitators	
		☒Large corporations	
		☒SMEs	
		☒Individuals/Entrepreneurs	
		☐Non-Grant Pilot	
		☐Project Reflow	
	☒**Beneficiaries**		
	☒**Local Communities**		
	☒**Civil Society**		
		☒Community Based Organization	
		☐Non-Governmental Organization	
		☐Academia	
		☐Trade Unions and Workers Unions	
	☒**Type of Engagement**		
		☒Information Dissemination	
		☒Partnership	
		☒Consultation	
		☒Participation	
	☒**Communications**		
		☒Awareness Raising	
		☒Education	
		☒Public Campaigns	
		☒Behavior Change	
☒ **Capacity, Knowledge and Research**			
	☒**Enabling Activities**		
	☒**Capacity Development**		

	☒**Knowledge Generation and Exchange**		
	☐**Targeted Research**		
	☒**Learning**		
		☒Theory of Change	
		☒Adaptive Management	
		☒Indicators to Measure Change	
	☒**Innovation**		
	☒**Knowledge and Learning**		
		☒Knowledge Management	
		☒Innovation	
		☒Capacity Development	
		☒Learning	
	☒**Stakeholder Engagement Plan**		
☒**Gender Equality**			
	☒**Gender Mainstreaming**		
		☒Beneficiaries	
		☒Women groups	
		☒Sex-disaggregated indicators	
		☒Gender-sensitive indicators	
	☒**Gender results areas**		
		☐ Access and control over natural resources	
		☒Participation and leadership	
		☒Access to benefits and services	
		☒Capacity development	
		☒Awareness raising	
		☒Knowledge generation	
☒**Focal Areas/Theme**			
	☒**Climate Change**		
		☒**Climate Change Mitigation**	
			☐Agriculture, Forestry, and other Land Use
			☒Energy Efficiency
			☐Sustainable Urban Systems and Transport
			☒Technology Transfer
			☒Renewable Energy
			☒Financing
			☒Enabling Activities
		☒ **United Nations Framework on Climate Change**	☒Nationally Determined Contribution
	☒ **Rio Markers**		
		☒Paris Agreement	
		☒Sustainable Development Goals	
		☐Climate Change Mitigation 0	

		☐ Climate Change Mitigation 1	
		☒ Climate Change Mitigation 2	
		☐ Climate Change Adaptation 0	
		☐ Climate Change Adaptation 1	
		☐ Climate Change Adaptation 2	