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

Part I: Project Information

Name of Parent Program
GEF-7 Africa Minigrids Program

GEF ID
10478

Project Type
FSP

Type of Trust Fund
GET

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

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

Countries
Ethiopia

Agency(ies)
UNDP

Other Executing Partner(s)
Ministry of Water, Irrigation and Electricity (MoWIE)

Executing Partner Type
Government

GEF Focal Area
Climate Change

Taxonomy

United Nations Framework Convention on Climate Change, Focal Areas, Climate Change, Climate Change Mitigation, Gender results areas, Gender Equality, Gender Mainstreaming, Renewable Energy, Financing, Enabling Activities, Influencing models, Strengthen institutional capacity and decision-making, Convene multi-stakeholder alliances, Demonstrate innovative approache, Deploy innovative financial instruments, Transform policy and regulatory environments, Stakeholders, Local Communities, Civil Society, Academia, Non-Governmental Organization, Community Based Organization, Communications, Education, Behavior change, Public Campaigns, Awareness Raising, Beneficiaries, Indigenous Peoples, Private Sector, Individuals/Entrepreneurs, Financial intermediaries and market facilitators, SMEs, Capital providers, Type of Engagement, Participation, Information Dissemination, Partnership, Consultation, Access to benefits and services, Participation and leadership, Capacity Development, Sex-disaggregated indicators, Women groups, Gender-sensitive indicators, Capacity, Knowledge and Research, Knowledge Generation, Learning, Indicators to measure change, Theory of change, Adaptive management, Targeted Research

Rio Markers

Climate Change Mitigation

Climate Change Mitigation 2

Climate Change Adaptation

Climate Change Adaptation 0

Submission Date

1/17/2020

Expected Implementation Start

3/1/2022

Expected Completion Date

2/28/2026

Duration

48In Months

Agency Fee($)

260,174.00

A. FOCAL/NON-FOCAL AREA ELEMENTS

Objectives/Programs	Focal Area Outcomes	Trust Fund	GEF Amount($)	Co-Fin Amount($)
CCM-1-1	Promote innovation and technology transfer for sustainable energy breakthroughs for decentralized power with energy usage	GET	2,890,826.00	13,773,751.00
		Total Project Cost($)	**2,890,826.00**	**13,773,751.00**

B. Project description summary

Project Objective

Supporting access to clean energy by increasing the financial viability, and promoting scaled up commercial investment in renewable mini-grids in Ethiopia, with a focus on cost-reduction levers and innovative business models.

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

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing($)	Confirmed Co-Financing($)
Component 1: Policy and regulation	Technical Assistance	Outcome 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)	GET	450,800.00	479,300.00
			1.2. Establishment of regulations, technical and contract provisions, and consultation with developers and financiers on grid arrival arrangements			
			1.3. Execution of the De-risking Renewable Energy Investment (DREI) analysis for solar PV minigrids			
			1.4. Development of decommissioning strategy and guidelines on waste management for minigrid components			
			1.5. Capacity-			

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing($)	Confirmed Co-Financing($)
Component 2: Business Model innovation with private sector engagement	Investment	Outcome 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 implemented under cooperative delivery models. 2.2. Technical assistance for productive use in association with AMP-supported minigrids.	GET	1,132,568.00	11,680,050.00
Component 2: Business Model innovation with private sector engagement	Technical Assistance	Outcome 2: Innovative business models based on cost reduction operationalized, with strengthened private sector participation in renewable mini grid development	2.3. Training, higher education programs, and internships established for minigrid design, installation, operations, maintenance, and business models.	GET	622,000.00	638,000.00

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing($)	Confirmed Co-Financing($)
Component 3: Scaled-up financing	Technical Assistance	Outcome 3: Financial sector actors are ready to invest in a pipeline of renewable mini-grids and concessional financial mechanisms are in place to incentivize scaled-up investment	3.1. Design support, including development of operational guidance, provided for minigrid and productive use financing facility. 3.2. Domestic financial sector capacity-building on business and financing models for minigrids	GET	242,800.00	150,751.00

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing($)	Confirmed Co-Financing($)
Component 4: Digital, Knowledge Management, and Monitoring and Evaluation	Technical Assistance	Outcome 4: Digitalization and data are mainstreamed, across stakeholders, into local mini-grid market development. Increased knowledge, awareness and network opportunities in the mini-grid market and among stakeholders, including benefitting from linkages to international good practice	4.1. A Digital Strategy is developed and implemented, including linkages to and following guidance from, the AMP Regional Project. 4.2. Mini-grids digital platform implemented to run tenders and manage data from pilot(s), and to support mini grids scale-up and cost-reduction. 4.3. A Quality Assurance and Monitoring Framework (QAMF) for measuring, reporting and verification of the sustainable development impacts of all mini grid pilot(s) supported, including GHG emission reductions, is adopted and operationalized based on standardized guidance from the AMP Regional Project. 4.4. M&E and	GET	305,000.00	145,000.00

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing($)	Confirmed Co-Financing($)
				Sub Total ($)	**2,753,168.00**	**13,093,101.00**
Project Management Cost (PMC)						
	GET		137,658.00		680,650.00	
	Sub Total($)		**137,658.00**		**680,650.00**	
	Total Project Cost($)		**2,890,826.00**		**13,773,751.00**	

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

Sources of Co-financing	Name of Co-financier	Type of Co-financing	Investment Mobilized	Amount($)
GEF Agency	UNDP	Grant	Investment mobilized	300,000.00
Recipient Country Government	Ministry of Water, Irrigation, and Energy (MoWIE)	Grant	Investment mobilized	12,172,301.00
Recipient Country Government	Ministry of Water, Irrigation, and Energy	In-kind	Recurrent expenditures	301,450.00
Donor Agency	African Development Bank	Grant	Investment mobilized	1,000,000.00
			Total Co-Financing($)	**13,773,751.00**

Describe how any "Investment Mobilized" was identified

Notes ? The co-financing from UNDP represents UNDP TRAC funding to be applied to the project. This sum is not recurrent expenditure, and therefore is presented in the table above as grant funding and as investment mobilized. ? The co-financing letter from MoWIE foresees the allocation of $12 million in ?mobilizing investments in the [renewable minigrid] sector through the Ethiopian Electric Utility.? This sum represents grant funding originating from various development partners and donors, for minigrids to be implemented during the AMP project period and supported by AMP?s various activities. The MoWIE letter also states a co-financing commitment of $172,301 in cash. This sum represents grant funding to support MoWIE?s implementation and oversight of various project activities, all toward stimulating investment and deployment of renewable minigrids in connection with the AMP. These two sums are presented together in the table above as grant funding and as investment mobilized. ? The MoWIE letter states a commitment to provide $301,450 in in-kind co-financing. This sum represents recurrent expenditures for MoWIE staff time and other resources, and is presented accordingly in the table above. ? The African Development Bank co-financing letter notes an indicative commitment of $1 million in grant funding for technical assistance from the Africa Mini-Grid Acceleration Program (AMAP). AMAP, whose implementation will be concurrent with the AMP project period, has four components: 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. Accordingly, the AfDB co-financing sum is listed in the table above as grant funding and as investment mobilized.

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

Agency	Trust Fund	Country	Focal Area	Programming of Funds	Amount($)	Fee($)	Total($)
UNDP	GET	Ethiopia	Climate Change	CC STAR Allocation	2,890,826	260,174	3,151,000.00
			Total Grant Resources($)		**2,890,826.00**	**260,174.00**	**3,151,000.00**

E. Non Grant Instrument

NON-GRANT INSTRUMENT at CEO Endorsement

Includes Non grant instruments? **No**

Includes reflow to GEF? **No**

F. Project Preparation Grant (PPG)

PPG Required **true**

PPG Amount ($)

100,000

PPG Agency Fee ($)

9,000

Agency	Trust Fund	Country	Focal Area	Programming of Funds	Amount($)	Fee($)	Total($)
UNDP	GET	Ethiopia	Climate Change	CC STAR Allocation	100,000	9,000	
				Total Project Costs($)	**100,000.00**	**9,000.00**	**109,000.00**

Core Indicators

Indicator 6 Greenhouse Gas Emissions Mitigated

Total Target Benefit	(At PIF)	(At CEO Endorsement)	(Achieved at MTR)	(Achieved at TE)
Expected metric tons of CO?e (direct)	0	16798	0	0
Expected metric tons of CO?e (indirect)	0	3267000	0	0

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

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

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

Total Target Benefit	(At PIF)	(At CEO Endorsement)	(Achieved at MTR)	(Achieved at TE)
Expected metric tons of CO?e (direct)		16,798		
Expected metric tons of CO?e (indirect)		3,267,000		
Anticipated start year of accounting				
Duration of accounting				

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

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

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

Technology	Capacity (MW) (Expected at PIF)	Capacity (MW) (Expected at CEO Endorsement)	Capacity (MW) (Achieved at MTR)	Capacity (MW) (Achieved at TE)
Solar Photovoltaic		0.62		
select				

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

	Number (Expected at PIF)	Number (Expected at CEO Endorsement)	Number (Achieved at MTR)	Number (Achieved at TE)
Female		15,806		
Male		15,805		
Total	0	31611	0	0

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

Part II. Project Justification

1a. Project Description

describe any changes in alignment with the project design with the original pif

The proposed strategy in this Project Document builds upon the strategy presented in the Concept Note. The project continues to be directly aligned with the GEF focal area of climate change mitigation (CCM-1-1), targeting the promotion of innovation and technology transfer for sustainable energy breakthroughs for decentralized renewable energy. The project is aligned with several of the UN?s Sustainable Development Goals (SDGs), especially SDG 7 (Affordable and Clean Energy), SDG 13 (Climate Action), and SDG 5 (Gender Equality).

The objective statement, component titles, and outcomes have been updated by the AMP Regional Project team for all countries participating in the AMP to reflect an updated and unified strategy. The proposed outputs of the AMP national child project in Ethiopia have also been revised. These revisions to outputs reflect an updated view of baseline activity and non-GEF donor support, which now cover many of the areas originally foreseen in the AMP Concept Note. New AMP outputs have been designed to maximize incrementality and synergy with other donor-funded projects, while still pursuing the core AMP strategy. The revised outputs account for new stakeholder input, especially from the Ministry of Water, Irrigation, and Energy (the Executing Agency). Table 1 summarizes changes made to the project since the Concept Note stage.

Table 1. Summary of changes between Concept Note and CEO ER

	A. Changes to objective statement and outcomes	Justification

	A. Changes to objective statement and outcomes	Justification
1	The objective statement and the wording of components, outcomes and indicators have been updated by the AMP Regional Project for all countries participating in the programme: Objective in Concept Note: Supporting access to clean energy by increasing the financial viability and promoting scaled-up commercial investment in mini-grids in Ethiopia. The new objective: *Supporting access to clean energy by increasing the financial viability, and promoting scaled?up commercial investment, in renewable mini-grids in Ethiopia, with a focus on cost-reduction levers and innovative business models.* Component 1: Policy and Regulation The new outcome: *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.* Component 2: ~~Mini?grid Project and~~ Business Model Innovation with Private Sector Engagement The new outcome: *2. Innovative business models based on cost reduction operationalized, with strengthened private sector participation in renewable mini-grid development mini-grids.* Component 3: ~~Innovative~~ *Scaled-up* Financing ~~for Mini-grids~~ The new outcome: *3. Financial sector actors are ready to invest in a pipeline of renewable mini-grids and concessional financial mechanisms are in place to incentivize scaled-up investment.* Component 4: ~~Convening, dissemination, tracking~~ Digital, Knowledge Management, and Monitoring and Evaluation	UNDP has developed a revised Harmonized Results Framework for AMP National Child Projects based on the set of components, outcomes and outputs included in the Program Framework Document (PFD) and national child project Concepts approved by the GEF Council in December 2019. The AMP Harmonized Results Framework (AMP) is an evolution from the PFD/Concept phase results framework and reflects the most updated thinking and guidance provided to national project design teams during the Project Preparation Grant (PPG) Phase for 1st round national child projects (Jan 2020 ? Jun 2021). All changes are explained in further below. However, the basic thinking around these changes is explained as follows: ? Objective: the objective has been adjusted to better reflect the program?s focus on cost-reduction. ? Component/Outcome 1. Changes made to emphasize on the importance of having governments make an informed (and sufficiently socialized) decision as to the Delivery Model they will pursue for the development of their local mini?grid market, as well as the need for developing a certain set of regulations in accordance with a given delivery model. ? Component/Outcome 2. Changes made to emphasize opportunity, in working with MG developers, for AMP to in particular include a focus on supporting inclusivity, i.e. working with domestic or under-represented MG developers (i.e., not just the large international actors). ? Component/Outcome 3. Given the prevalence of early markets in both 1st and 2nd round countries, changes were made to emphasize opportunity for AMP to in particular work on capacity building for (i) the domestic financial sector in assessing MG investment opportunities, and (ii) MG developers to create a pipeline of accessible investment opportunities. Both these areas can provide significant value in preparing the market for scale-up. ? Component/Outcome 4: Changes made to reflect UNDP?s views of digitalization and data as increasingly important and key to AMP. All national child projects will include a digital strategy in component 4; this strategy will then guide various other outputs on data which can be spread across the other components. Considerable support and

	B. Changes to outputs	Justification
2	Addition of new Output 1.1 *Output 1.1. Support for national dialogue, associated capacity enhancement and arrangements for implementation of cooperative minigrid delivery model(s)* -	This new output reflects a focus on alternative delivery models across the entire AMP. In Ethiopia, the Ministry of Water, Irrigation, and Energy (MoWIE) has requested that the AMP focus on development of cooperative minigrid delivery models. This AMP focus supplements extensive work already being funded by other donors on state-owned (utility/EPC), private, and public-private partnership models.

	B. Changes to outputs	Justification
3	Removal of original Output 1.1 ~~Output 1.1. Customs procedures and import requirements harmonized, and capacities of public officials to implement and enforce simplified import process strengthened~~	MoWIE and other development partners are covering this area under other donor-funded projects.
4	Removal of original Output 1.2 ~~Output 1.2. Geospatial, techno-economic modeling of least-cost off-grid renewable electricity technologies (minigrids, grid expansion, solar home systems)~~	The geospatial modeling and least-cost analysis of on-grid and off-grid electrification options was completed by MoWIE in 2019, with the support of the World Bank. This analysis forms the core of the National Electrification Program (NEP 2.0, 2019).
5	Removal of original Output 1.3 ~~Output 1.3. Formulation of the Rural Electrification Strategy and Action Plan~~	NEP 2.0 embodies Ethiopia?s official rural electrification strategy based on the geospatial analysis and other work since 2019. NEP 2.0 contains a plan for off-grid electrification, with planned actions for minigrid deployment.
6	Addition of new Output 1.2 *Output 1.2. Establishment of regulations, technical and contract provisions, and consultation with developers and financiers on grid arrival arrangements*	This output has been added based on the recognition that grid arrival poses important but heretofore unaddressed risks for minigrid investment in Ethiopia. NEP 2.0?s geospatial analysis foresees the possibility of around 1100 minigrids for which grid arrival is eventually expected. If these minigrids are to be realized, there must be provisions for a credible process by which the minigrids become independent power producers or otherwise compensated within the term of the concession.
7	The original Output 1.4 has become the new Output 1.3. The title of this output has changed slightly. *Output 1.3. Execution of the De-risking Renewable Energy Investment (DREI) analysis for solar PV minigrids*	The content of this output has not changed but has been made more concrete and detailed since the PFD stage.

	B. Changes to outputs	Justification
8	Removal of original Output 1.5 Output 1.5. ~~Capacity building provided to public officials (regulator, ministries) specifically to design procurement/tender processes that incorporate cost-reduction levers and innovative business models~~	This output is no longer needed. This area of work is well covered by the World Bank?s *Access to Distributed Electriciy and Lighting (ADELE)* project. AMP?s new focus with regard to procurement and tender processes will be the support of driving efficiencies through digitalization (Component 4).
9	The original Output 1.6 has become the new Output 2.3. The title of this output has changed slightly. Output 1.6 ~~Public programmes (apprenticeships, certificates, university programs) to develop competitive, skilled labor market in minigrids~~ *Output 2.3. Training, higher education programs, and internships established for minigrid design, installation, operations, maintenance, and business models.*	The content of this output has not changed but has been made more concrete and detailed since the PFD stage. This output is more suitably included in Component 2 because of the focus on private-sector developers.
10	The original Output 1.7 has become the new Output 1.4. The title of this output has changed slightly to more precisely reflect its purposes and activities. Original Output 1.7. ~~Support provided to establish waste management policies and plans to ensure minigrid hardware and batteries are properly handled at end of life~~ *Output 1.4. Development of decommissioning strategy and guidelines on waste management for minigrid components.*	The content of this output has not changed but has been made more concrete and detailed since the PFD stage.
11	Addition of new Output 1.5 *Output 1.5. Capacity-building for MoWIE and its sectoral institutions via the MoWIE Innovation Center (MIC).*	This output meets a need newly identified by MoWIE during the project preparation. Capacity-building of the staff at MoWIE, the Ethiopian Energy Authority, the Ethiopian Electric Utility, and the Rural Electrification Fund is needed to ensure that these staff can manage new responsibilities supported by AMP and other projects to help scale the market.

	B. Changes to outputs	Justification
12	Output 2.1 has been slightly revised, clarified, and split across two outputs. Original Output 2.1. ~~Pilots developed, including on productive use/innovative appliances and modular hardware/system design, leading to cost-reduction in mini-grids and sufficient growing demand for minigrid systems~~ *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.*	The content of the original output has not changed but has been made more concrete and detailed since the PFD stage. AMP will focus on piloting cooperative delivery models in Output 2.1. AMP has chosen this focus based on guidance from MoWIE and development partners that such delivery models are needed and have great potential, but are receiving more modest attention than public or private/PPP models. Productive use has been split into its own output, but will still be closely connected to pilot minigrid deployment.
13	Removal of original Outputs 2.2 and 2.3. 2.2 ~~Capacity of potential tender bidders (private sector developers) strengthened to consider innovative business models and cost-reduction levers~~ 2.3 ~~Capacity of winning tender bidders (private sector developers) strengthened to develop and implement innovative business models and cost-reduction levers~~	The activities of these outputs have been shifted to the new outputs 2.1, 2.2, and 2.3 for greater coherence. The AMP will deliver capacity support to both cooperative minigrid owners and minigrid developers on business models, cost reduction, and revenue enhancement via productive use.
14	The original Output 3.1 has been revised for greater precision. Output 3.1. ~~Financial advisory committee established and operational~~ *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.*	The strategic purpose of this output has not changed. The output now more specifically focuses on delivering support for design of a financial facility at the Rural Electrification Fund, rather than merely establishing an advisory committee.

	B. Changes to outputs	Justification
	Removal of original Outputs 3.1, 3.2, and 3.3 ~~Output 3.3. Innovative financing solutions for minigrid development are identified and implemented through the Development Bank of Ethiopia (DBE) and the Market Development Credit Line (MDCL)~~ ~~Output 3.4. General market intelligence study on minigrids prepared and disseminated amongst public officials and finance community~~ ~~Output 3.5. Feasibility study support provided to minigrid developers, creating a pipeline of investible assets~~	The original Output 3.3 is no longer relevant because minigrid financing is provided via the Rural Electrification Fund, not the DBE. The Rural Electrification Fund is indeed the main expected partner of AMP for the new Output 3.1 on development of financing solutions. The need for a general market study will be covered by the DREI analysis of Output 1.3. The need for feasibility study support has not been confirmed during the preparatory period.
15	Addition of new Outputs 4.1 and 4.2 *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.*	These outputs have been added to all AMP national child projects, in recognition of how digitalization can significantly raise the efficiency of procurement, operation and maintenance, and monitoring and evaluation.
16	The original Outputs 4.1, 4,3, and 4.4 have become the new Outputs 4.5 and 4.3 respectively. ~~Output 4.1. Lessons learned captured and disseminated at the national level~~ ~~Output 4.3. Knowledge network / Community of Practice established to promote minigrid development / rural energy access~~ ~~Output 4.4. A Quality Assurance and Monitoring Framework for measuring, reporting and verification of the sustainable develop impacts of MGs, including GHG emission reductions is developed and operationalized~~ - *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.*	The content of the original outputs has been entirely preserved in the new outputs. The numbering and content of the new outputs in Component 4 are standard across all of the AMP national child projects.

<table>
<tr><th></th><th>B. Changes to outputs</th><th>Justification</th></tr>
<tr><td>17</td><td>Removal of original Output 4.2

<s>Output 4.2 Replication plan (including investment plan) for scaling up rural energy access developed</s></td><td>This output is no longer needed because it is already covered by the MoWIE Directorate of Electrification with support from other donor-funded projects.</td></tr>
</table>

<table>
<tr><th></th><th>C. Changes to budget and co-financing</th><th>Justification</th></tr>
<tr><td>18</td><td>The budgeted GEF allocations (USD) for the four project components have been adjusted as follows:
<table>
<tr><th></th><th>Concept Note / PFD stage</th><th>CEO Endorsement stage</th></tr>
<tr><td>Component 1</td><td>729.997 (TA)</td><td>450,800 (TA)</td></tr>
<tr><td>Component 2</td><td>1,113,181 (INV)
203,331 (TA)</td><td>1,132,568 (INV)
622,000 (TA)</td></tr>
<tr><td>Component 3</td><td>446,662 (TA)</td><td>242,800 (TA)</td></tr>
<tr><td>Component 4</td><td>259,997 (TA)</td><td>305,000 (TA)</td></tr>
<tr><td>Project Management</td><td>137,658</td><td>137,658</td></tr>
</table>
-
-</td><td>The reduction in Component 1 reflects the removal of work on geospatial mapping. The increase in TA in Component 2 reflects the recognition that considerable consultant effort will be needed to support pilot minigrid planning and oversight, as well as productive use support and training. The reduction in Component 3 TA reflects a more precise assessment of needed work, taking account that much of the analytic basis for Output 3.1 will be covered in Component 1 (the DREI study). The increase in TA in Component 4 reflects new activities on digital strategy and platform development.</td></tr>
</table>

<table>
<tr><th></th><th>C. Changes to budget and co-financing</th><th>Justification</th></tr>
<tr><td>19</td><td>Co-financing commitments secured at the CEO Endorsement differ from the projections at the Concept Note / PFD stage as follows.

Co-financing projections at Concept Note stage
<table>
<tr><td>Ethiopian Electric Utility (EEU)</td><td>12,000,000</td></tr>
<tr><td>World Bank</td><td>15,000,000</td></tr>
<tr><td>African Development Bank</td><td>20,000,000</td></tr>
<tr><td>EU</td><td>10,000,000</td></tr>
<tr><td>TOTAL</td><td>57,000,000</td></tr>
</table>

Co-financing commitments secured at CEO Endorsement
<table>
<tr><td>MoWIE</td><td>12,473,751</td></tr>
<tr><td>African Development Bank</td><td>1,000,000</td></tr>
<tr><td>UNDP</td><td>300,000</td></tr>
<tr><td>TOTAL</td><td>13,773,751</td></tr>
</table></td><td>The Concept Note projected co-financing levels based on the assumption that donor-funded minigrid implementation for the EEU would be guided and supported by the AMP. Since that time, the World Bank, the African Development Bank, and the EU have been proceeding rapidly with their minigrid financing and technical assistance without the AMP?s involvement so far. Their focus is on utility-owned minigrids, whereas AMP?s is on cooperative-owned minigrids.

AMP may well still secure further co-financing. UNDP is in ongoing discussions with the World Bank about the possibility of a letter asserting that part of ADELE?s work can be considered as parallel co-financing.</td></tr>
</table>

1a. *Project Description*. Elaborate on:

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

In 2019, the Ministry of Water, Irrigation and Energy (MoWIE) of Ethiopia set forth the National Electrification Program 2.0, which defines ambitious goals to provide universal nationwide electricity access by 2025. In the predominantly agrarian countryside, where most citizens live, MoWIE aims to fulfill this plan largely via the implementation of solar minigrids. Such minigrids offer significant technical potential, and notably, the absence of incremental greenhouse gas emissions. But the potential of minigrids remains untapped because of various barriers, especially with regard to investment risk. The objective of this project is to increase 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. By achieving this objective, the project will in turn lead both to

socioeconomic impact within Ethiopia and global environmental benefits in the form of greenhouse gas reductions and climate change mitigation.

The implementation of solar minigrids in Ethiopia faces a number of investment risks. Table 1 summarizes the specific risks and their root causes.

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 customs treatment of such hardware and equipment	? Lack of a competitive market for buying hardware from international and domestic suppliers ? The absence of standardized performance specifications ? 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

Risk Category	Risk Description	Root Barriers Underlying the Risk in Ethiopia
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	b) Lack of experience to ensure effective execution and to manage challenges c) Lack of experience in remote operations and maintenance of solar PV minigrids d) 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 risks is critical for the financial viability of minigrids and for scaling the market 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.

The specific risks, barriers and root causes, along with proposed actions that the AMP will undertake to address them, are all presented in 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 low familiarity with regard to minigrid activity by agricultural cooperatives	There is a need for clarification of specific responsibilities and capacity building at the Federal Cooperative Agency (FCA) and the Rural Electrification Fund with regard to minigrids	Support for national dialogue, associated capacity enhancement and arrangements for implementation of cooperative minigrid delivery model(s) (Output 1.1) Implementation of pilot minigrids under cooperative delivery models. (Output 2.1)	Assumption of coordination with the Ethiopian Energy Authority, which regulates minigrids

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 EEA minigrid directive does set forth general provisions for grid arrival. Furthermore, Rocky Mountain Institute is supporting MoWIE 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 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 MoWIE and the EEA, 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 MoWIE and its sectoral agencies	MoWIE?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 MoWIE and sector agencies via the MoWIE Innovation Center (Output 1.5)	Close coordination of training with other donor agencies that are also supporting the MoWIE 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)

2) the baseline scenario and any associated baseline projects,

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.[1][1] 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 2015-16[2][2]. 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.[3][3] 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.[4][4]

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, Irrigation, and Energy (MoWIE) 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, MoWIE has been laying the foundation for rapid and systematic scale-up, with a focus on solar-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 Minigrid Directive, whose adoption by the Ethiopian Energy Authority (EEA) 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. MoWIE has also carried out a geospatial mapping defining priority areas for 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 in meeting its electrification ambitions. However, the Government faces 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.

Baseline donor-funded projects

While the minigrid market is at a nascent deployment of renewable minigrids in Ethiopia have progressed. For instance, 37 pilot solar-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. 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 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 African Development Bank is also supporting solar 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 MoWIE for planning, policy development, and business model analysis.

Rocky Mountain Institute 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 MoWIE?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. Now, RMI is launching new work on the development and piloting of investible business models for transitional minigrids.

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

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 AMP comprising national projects in 18 countries and a regional umbrella project.

The Theory of Change of the AMP is presented below in Figure 1.

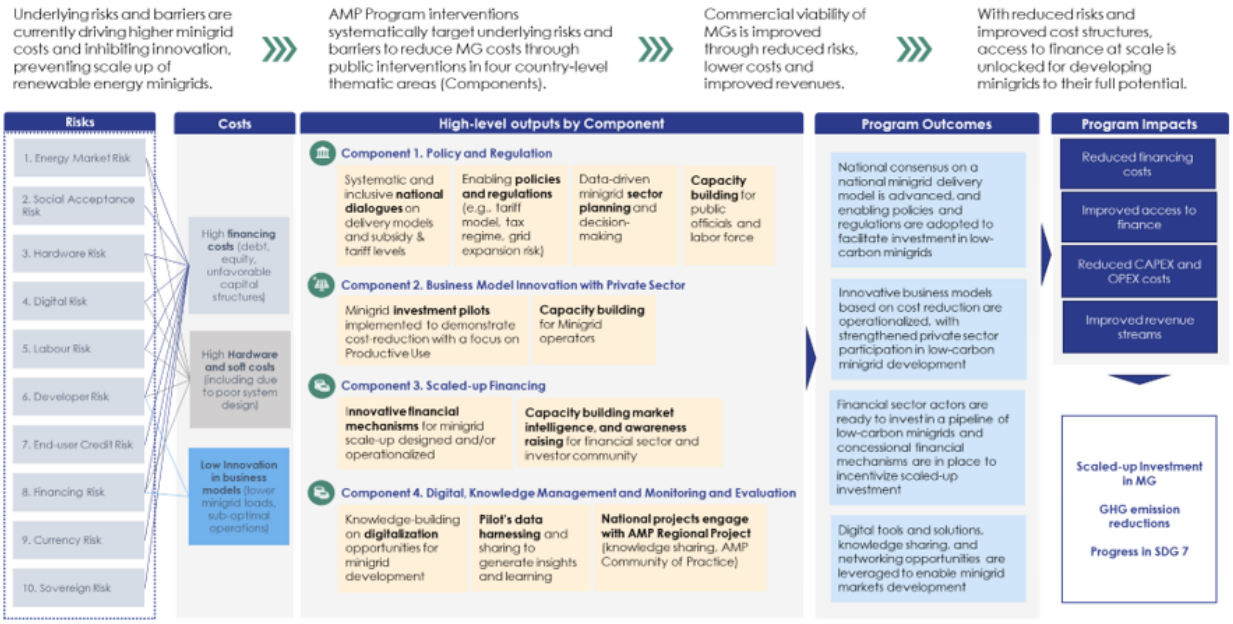


Figure 1. Theory of Change of the Africa Minigrids Program

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 2.

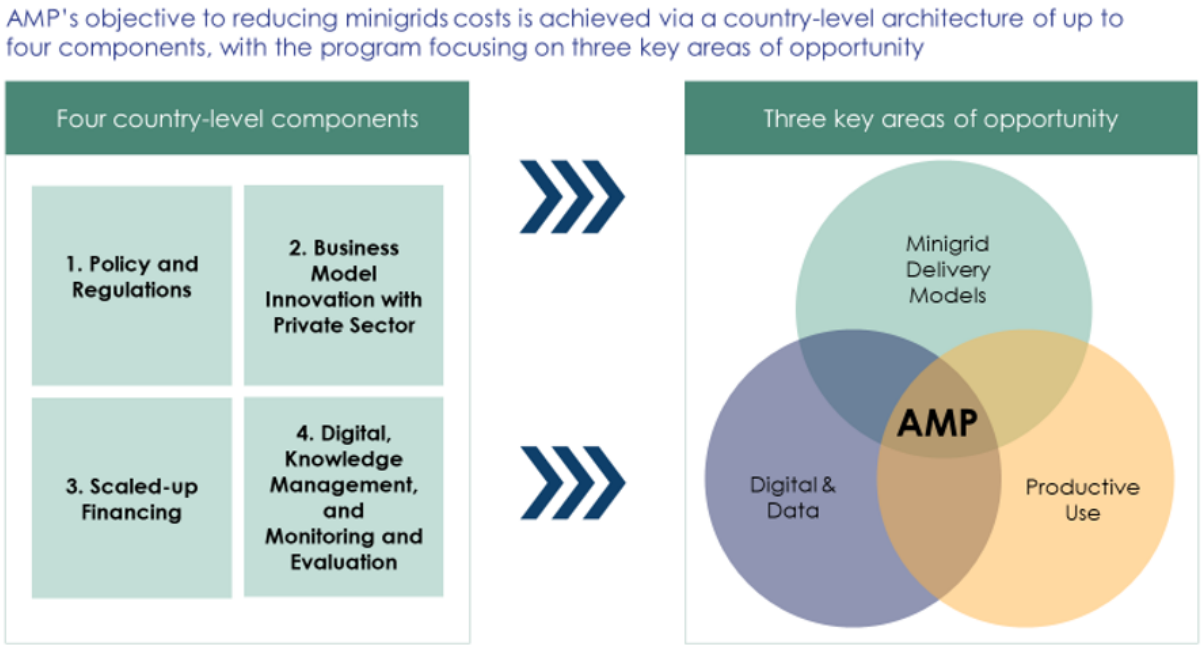


Figure 2 AMP?s objective, architecture and areas of opportunity

The four components are:

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.

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.

Components and planned activities

Component 1 (Policy and regulations) 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 MoWIE, Component 1 is focused on (i) critical analysis, policy development, and capacity enhancement to address gaps needed for cost-effective deployment of 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 MoWIE staff and its sectoral institutions via the new MoWIE 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). MoWIE 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. MoWIE has therefore requested that the AMP focus on the cooperative-led delivery model.

While the Ethiopian Energy Authority (EEA) 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 3 below.

Table 3. 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 MoWIE 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 Ethiopian Energy Authority, complementing the grid arrival framework set forth in EEA?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.

MoWIE 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. MoWIE 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 MoWIE, 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 MoWIE and its sectoral institutions via the MoWIE Innovation Center (MIC). MoWIE 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 MoWIE and its sectoral institutions. Such capacity-building is needed to enable MoWIE to establish and implement evidence-based strategy, policy, and regulations nationally as minigrids are scaled up under various delivery models. Enhanced capacity at MoWIE thus also strengthens the sustainability of AMP project results and supports scaling up of AMP-facilitated business models and minigrid investments after project completion.

MoWIE is establishing the MoWIE 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 MoWIE 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 MoWIE, EEU, EEA, 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 MoWIE 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 MoWIE?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.

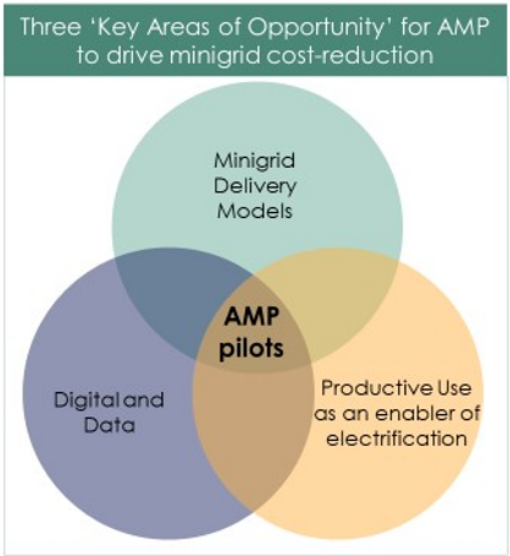
Component 2 comprises the following outputs.

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 MoWIE?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 3 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 3. 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

  o Competitive tendering.

  o 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 EEA?s Minigrid Directive, to be demonstrated in bid documentation.

? Review of MoWIE?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.

Process and principles for minigrid site selection

MoWIE 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 MoWIE 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.

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 MoWIE, 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 MoWIE-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 MoWIE 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 MoWIE and REFEF 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.

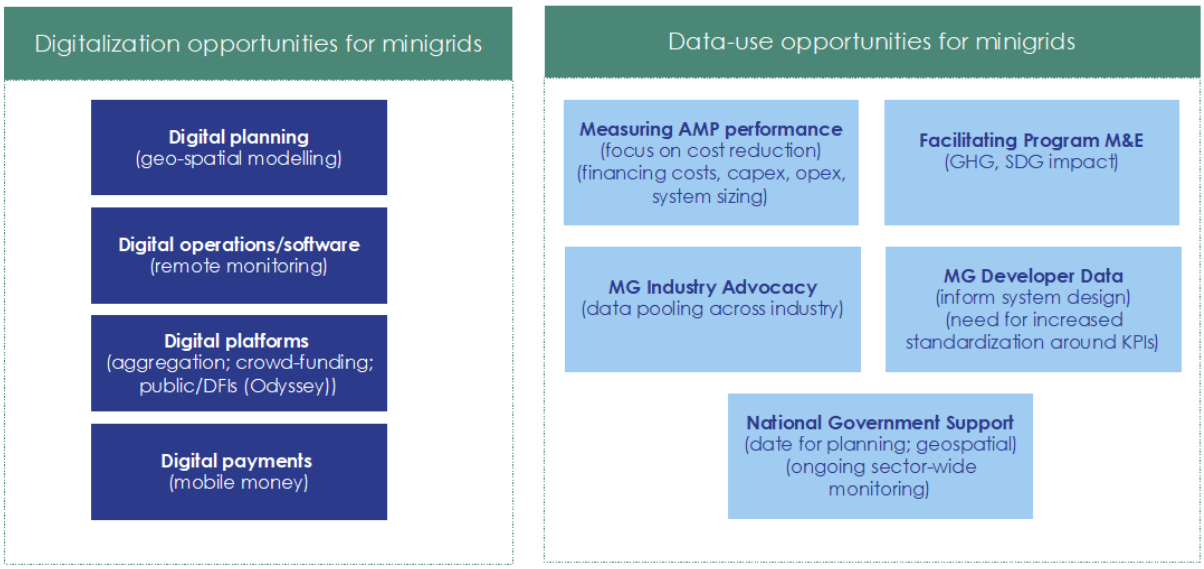


Figure 4. Digital and Data Opportunities for Minigrids in the AMP

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.

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 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 Table 4 below.

Table 4. 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)[1] 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 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 MoWIE 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

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

The AMP is fully aligned with the GEF focal area of climate change mitigation. Benefits from the project involve three GEF Core Indicators ? GHG emissions reductions, new installed renewable energy generation and storage capacity, and direct beneficiaries including electricity customers, productive use entrepreneurs, and recipients of technical training.

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

The AMP in Ethiopia has been designed taking into account the existing and planned initiatives by MoWIE and development partners. During the project preparatory period, the AMP team consulted with national agencies including MoWIE, EEU, EEA, 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. All AMP outputs and activities either add value by building upon existing initiatives or fill gaps that no existing donor-supported programs have yet filled.

In particular, the AMP team has confirmed that the following key areas are unaddressed or insufficiently addressed by other governmental and/or donor-funded initiatives.

- **Refinement and deployment of the cooperative delivery model, including associated productive use.** Note that none of the minigrids to be supported by the World Bank and AfDB involve cooperative ownership.
- **Planning and de-risking for transitional minigrids.** Neither the World Bank nor AfDB is currently supporting work on transitional minigrids. RMI has begun this work, but AMP will provide needed resources to expand delivery of needed analysis and consultation in this area.
- **Planning and tools for waste management and decommissioning.** No agency has yet worked on the activities planned under Output 1.4.
- **Training to develop in-country capacity on minigrid development, operations, and maintenance.** This is a major need, essential for scale-up of minigrids in Ethiopia, but not yet addressed by any other national or donor-funded initiatives.

•**Innovative financing**. Financing for both minigrids and productive use equipment remains an urgent need, which existing programs alone do not sufficiently address.

The total cost of the project amounts to USD 3,190,826. This is financed through a GEF grant of USD 2,890,826, USD 300,000 in cash co-financing to be administered by UNDP. MoWIE, as the GEF Implementing Agency, is responsible for the oversight of the GEF.

Confirmed Co-financing: Realization of project co-financing will be monitored during the mid-term review and terminal evaluation processes, and will be reported to the GEF. 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**
MoWIE	Cash and in-kind	USD 12,453,751	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 MoWIE?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 MoWIE 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

UNDP	Cash (TRAC funds)	USD 300,000	Co-financing from UNDP will support project management, including a share of the salaries of the Project Manager and Administrative/Financial Manager, as well as the costs of consultants on social and environmental safeguards and gender.	This funding is secured.	N/A

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

The project is expected to yield the following global environmental benefits. See Annex 13 of the Project Document for details on calculation methodology and assumptions.

Indicator 1: **Direct [and indirect] greenhouse gas emissions mitigated (metric tons of carbon dioxide equivalent)** (Units of measure: metric tons of CO2e)	16,798 (direct) 3,267,000 (indirect) **[3]**
Indicator 3: **Direct increase in installed solar minigrid capacity (MW)**	0.623 MW (solar PV) 0.152 MWh (battery storage)

7) innovativeness, sustainability and potential for scaling up.

Renewable minigrids, especially those to be developed as non-public delivery models, are quite new in Ethiopia. Productive use associated with minigrids is likewise quite new in the country. MoWIE and its development partners before AMP have conducted analysis leading to the NEP 2.0, the Minigrid Directive, and the identified delivery models embodied therein. These development partners, especially the World Bank but also AfDB, GiZ, RMI, the Rockefeller Foundation, are supporting

ambitious next steps, essentially all of which involve the introduction of innovation and new business activity in all aspects of minigrid development and productive use.

AMP works 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, and more.

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 these enabling conditions. In turn, direct support for cooperative minigrid development under Output 2.1 and training to minigrid developers in Output 2.3 will also create enabling conditions that have heretofore been absent in Ethiopia, creating a base of human capacity and entrepreneurial aspiration to actually carry out the needed work. 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 in Ethiopia improves the prospects for the minigrid sector to grow in the future ? going beyond donor support, state ownership, and EPC implementation by international firms, heading toward new, self-sustaining models of minigrid development closely integrated with productive use, supported increasingly by commercial financing.

[1] 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.

1b. Project Map and Coordinates

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

The geospatial mapping of NEP 2.0 forms the basis of all minigrid planning overseen by MoWIE in Ethiopia. Annex E of this Request for CEO Endorsement shows a mapping of where minigrids have been deemed the most promising.

At the time of CEO endorsement, specific sites for AMP pilot activity have not yet been selected. MoWIE will provide a list of candidate sites, from which the specific pilot sites will be chosen during the Inception Period of the project.

1c. Child Project?

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

The outputs and the Project Results Framework of the AMP Ethiopia are harmonised with the other AMP child projects. Specifically, the child project in Ethiopia includes multiple activities that are being applied across all the other countries in this round of AMP projects, including those in Output 1.1 (national dialogue on delivery models), Output 1.3 (DREI analysis), Output 2.1 (minigrid pilots), as well as Components 3 (innovative financing) and 4 (digital, data, knowledge management, and M&E). In additon, all child projects, including this one in Ethiopia, also share most elements of the Environmental and Social Management Framework.

As part of the AMP network, the project will have access to (if requested) a variety of dedicated technical and operational support from the AMP regional project as follows:

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.

2. Stakeholders

Select the stakeholders that have participated in consultations during the project identification phase:

Civil Society Organizations

Indigenous Peoples and Local Communities

Private Sector Entities

If none of the above, please explain why:

Please provide the Stakeholder Engagement Plan or equivalent assessment.

The full Stakeholder Engagement Plan is provided in Annex 9 of the Project Document. This plan elaborates on the full range of stakeholders identified during project preparation, their expected roles in the project, and modes of outreach and grievance redress. A summary table of the Stakeholder Engagement Plan, enumerating key stakeholders as well as the project?s intended approaches for engagement, is presented below.

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

Select what role civil society will play in the project:

Consulted only;

Member of Advisory Body; Contractor; Yes

Co-financier;

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

Executor or co-executor;

Other (Please explain)

Stakeholder engagement plan

#	**Stakeholder category (alphabetically listed)**	**Engagement approach[1]**	**Type of Information (shared and collected)**	**Communication channels or methods**	**Frequency [2]**	**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

#	Stakeholder category (alphabetically listed)	Engagement approach[1]	Type of Information (shared and collected)	Communication channels or methods	Frequency [2]	Responsible party for engagement
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, Executing Agency
4.2	Development Partner (co-financier)	Involve	Policy, regulatory, technology /industry and project developments. Pilot project developments. Update on outputs and findings. Active participation in project design details and alignment / interface requirements, as relevant for areas of co-finance.	Progress updates, emails, newsletters, website, webinars, workshops, community of practice events, meetings, training events. If interested, may participate in Project Board / Steering Committee.	Frequent	PMU, Project Board, Executing Agency, National Dialogue

#	Stakeholder category (alphabetically listed)	Engagement approach[1]	Type of Information (shared and collected)	Communication channels or methods	Frequency [2]	Responsible party for engagement
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[1]	Type of Information (shared and collected)	Communication channels or methods	Frequency [2]	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

#	Stakeholder category (alphabetically listed)	Engagement approach[1]	Type of Information (shared and collected)	Communication channels or methods	Frequency [2]	Responsible party for engagement
8.2	Government (less directly involved)	Consult	Share general information on clean energy mini-grid sector developments. Consult regarding opportunities for collaboration and coordination. Invite questions, concerns and inputs on risks, opportunities and developments.	Emails, website, webinars, newsletters. Invite to knowledge sharing events. Interviews / meetings with stakeholder representatives.	Less frequent	PMU, Executing Agency
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

#	Stakeholder category (alphabetically listed)	Engagement approach[1]	Type of Information (shared and collected)	Communication channels or methods	Frequency [2]	Responsible party for engagement
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, Executing Agency
11	Land rights	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

#	Stakeholder category (alphabetically listed)	Engagement approach[1]	Type of Information (shared and collected)	Communication channels or methods	Frequency [2]	Responsible party for engagement
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 EEA 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, Executing Agency, National Dialogue

#	Stakeholder category (alphabetically listed)	Engagement approach[1]	Type of Information (shared and collected)	Communication channels or methods	Frequency [2]	Responsible party for engagement
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. Invite questions and inputs on risks, opportunities and developments.	Emails, website, webinars, newsletters. Invite to knowledge sharing events. Interviews / meetings with stakeholder representatives. Consult with regards specific regulatory aspects.	Frequent	PMU, Project Board, Executing Agency
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

#	Stakeholder category (alphabetically listed)	Engagement approach[1]	Type of Information (shared and collected)	Communication channels or methods	Frequency [2]	Responsible party for engagement
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 national women?s organizations. All project information available online and from the PMU.	Less frequent	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

#	Stakeholder category (alphabetically listed)	Engagement approach[1]	Type of Information (shared and collected)	Communication channels or methods	Frequency [2]	Responsible party for engagement
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.

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[1] 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).

[2] 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.

3. Gender Equality and Women's Empowerment

Provide the gender analysis or equivalent socio-economic assesment.

The table below presents the project?s Gender Action Plan, which is based on analysis of baseline conditions, barriers, and opportunities associated with the project?s components and activities. The full Gender Analysis and Gender Action Plan are presented in Annex 11 of the Project Document.

Project Outputs	**Proposed Gender Action**	**Indicator**	**Responsible body**
Component 1. Policy and Regulations			
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	MOWIE, 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 MoWIE and its sectoral institutions via the MoWIE 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 issues in minigrid development	MOWIE, Women Children and Youth Affairs Directorate, Project Manager, Gender Specialist
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	MOWIE, 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	MOWIE, 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	MOWIE, 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	MOWIE, 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	MOWIE, 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, MOWIE, 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, MOWIE, 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 an technical briefs produced on topics of gender and mini grids	Gender Specialist, MOWIE, Women Children and Youth Affairs Directorate

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

Yes

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

Improving women's participation and decision making Yes

Generating socio-economic benefits or services or women Yes

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

Yes

4. Private sector engagement

Elaborate on the private sector's engagement in the project, if any.

Private sector engagement is a core principle of the AMP. The project in Ethiopia promotes private-sector engagement in several ways.

1. Promotion of cooperative minigrid delivery models via institutional capacity-building and pilots (Outputs 1.1 and 2.1 respectively). This work will involve direct collaboration with agricultural cooperatives as partners and beneficiaries.

2. Promotion of productive use. Output 2.2 will assist private-sector entrepreneurs, especially women, in developing new business activity and expanding value chains made possible by rural electrification.

3. Training and internships for aspiring minigrid developers and operators. Output 2.3 will build skills and facilitate job opportunities for aspiring technical professionals wishing to enter the minigrid sector as private entrepreneurs.

4. Training for commercial banks on minigrid financing and business models. Output 3.2 will aim to remove informational barriers that inhibit commercial financiers from investing in minigrids.

5. Risks to Achieving Project Objectives

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

#	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 (under component 3), explore possible mechanisms to mitigate these risks.	MoWIE 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 MoWIE 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.	MoWIE 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.	MoWIE 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.	MoWIE, 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	MoWIE, 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.	MoWIE, 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.	MoWIE, 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 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	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 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.	MoWIE, UNDP, Addis Ababa Institute of Technology, and local partners
9	The existing staff capacity of MoWIE 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 MoWIE personnel. Output 1.5 (capacity-building via the MoWIE Innovation Center) will also help manage this risk.	MoWIE with UNDP support

10	Procurement delays slow the fulfillment of key outputs and achievement of outcomes	Operational	I = 3 L = 3 Moderate	The MoWIE 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 MoWIE and accounting for the small size. The contracting will also account for UNDP?s experience and lesson?s learnt in Ethiopia.	MoWIE, UNDP, and contracted experts
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.	MoWIE, 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.	MoWIE 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	MoWIE 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.	MoWIE with support from UNDP
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.	MoWIE 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.	MoWIE 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.	MoWIE 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. Given the small size and limited land requirements the impacts are not expected to cause any displacements or economic loss.	MoWIE 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.	MoWIE 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.	MoWIE with support from UNDP

Additional notes on opportunities related to COVID-19

The multidimensional COVID-19 crisis creates not only risks but also opportunities for the project to mitigate country- and project-level impacts, to contribute toward green recovery and building back better, and also to leverage global responses to COVID-19 to deliver global environmental benefits and/or climate adaptation and resilience benefits. The following opportunities as relevant for AMP have been identified for inclusion in each projects as relevant:

? **Leveraging economic recovery and stimulus plans**. Governments across the continent have been structuring and implementing stimulus and economic recovery plans, social programs and even policy reforms during the crisis. These offer a good opportunity to accelerate the energy transition and step-up climate ambition. Putting people back to work will be an important part of stimulus plans and clean energy is an important source for new job creation and has great potential to spur local economic activity. This creates opportunities for AMP as increased funding availability and public support for renewable energy projects could be leveraged to augment AMP?s results. Also, increased support to energy consumers could address widening affordability gaps which pose risks for project implementation.

? **Promoting the inclusion of electric cooking into minigrid operators service offer**. With more attention paid to respiratory health issues as a result of the health crisis, an opportunity arises to address air pollution and make the case for accelerated decarbonization of the electricity matrix, clean transport, and clean cooking and heating technologies. AMP national child projects could provide a way to develop a broad array of energy services as part of a social protection program for the crisis response, particularly focused on provision of clean cooking e-technologies

from minigrid operators, which are particularly important to reducing health-related vulnerabilities to COVID-19. Households switching to minigrid-powered electric cooking save money compared with traditional methods. Electric cooking also presents minigrid developers with a valuable opportunity to increase their load factor and boost their revenue.

? **Minigrid site selection with COVID-19 considerations.** AMP projects could also seek to help policymakers and regulators integrate elements from government strategies to respond and recover from the pandemic into energy sector planning. For instance, rural electrification strategies and plans could prioritize areas based on the presence of essential health facilities, key economic activities, particularly vulnerable populations, or other factors to concentrate efforts where COVID-19 impacts are highest. AMP national child projects can help enhance coordination between the energy and health sectors to ensure national electrification plans and minigrid sector planning consider the energy needs of the health sector.

? **Health facilities as beneficiaries of specific minigrid investment pilots.** AMP projects provide support to a number of specific minigrid investment pilots across AMP countries. Projects could use digital mapping tools to proactively identify minigrid sites that can benefit health facilities in addition to households, commercial, and productive users.

? **Improved business case for minigrids providing energy for health facilities.** With its focus on minigrid cost-reduction, AMP could potentially add value in reducing the cost and increasing the commercial viability of minigrids providing energy for healthcare facilities in several ways including supporting governments: (i) to improve data collection on energy access in the health sector and conducting comprehensive community energy needs assessments of health facilities that consider both electricity and thermal energy needs; and (ii) to utilize specialized digital tools to assist minigrid operators in targeting health care providers and designing appropriate minigrid systems for rural health clinics.

? **Communities of Practice focused on COVID-19 impacts.** If there was enough interest among several countries AMP could specifically create a specific Community of Practice (CoP) to focus on impacts, risks and opportunities around minigrids and the global pandemic. This would allow AMP countries to document and exchange experiences and knowledge on how off-grid lighting and electrification can alleviate some of the disadvantages and challenges experienced by households, productive users, health facilities and communities without access to electricity in facing the different stages of the COVID-19 pandemic and bolster recovery efforts.

6. Institutional Arrangement and Coordination

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

Roles and responsibilities of the project?s governance mechanism

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

The Executing Agency is responsible for executing this project. Specific tasks include:

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

- Risk management as outlined in this Project Document;

- Procurement of goods and services, including human resources;

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

- Approving and signing the multiyear workplan;

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

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

To avoid duplication and coordinate with existing structures within MoWIE, the project 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 MoWIE?s Rural Electrification Fund (REF) could also be a key partner, under the leadership of MoWIE as Executing Agency, in achieving project?s outcomes. The project has a number of activities to strengthen REF?s capacities and establishment.

UNDP has conducted a critical review of MoWIE?s capacity via UNDP?s capacity assessment tools (i.e. the ?Partner Capacity Assessment Tool?, or PCAT, and the ?Harmonized Approach to Cash Transfers?, or HACT). This latter assessment, in particular, tested MoWIE?s practices in 7 subject areas, including in Financial Reporting and Monitoring and in Procurement, both of which were assessed as ?low risk? activities by the chartered certified accountants who conducted the study. The additional 5 subject areas (e.g. Program Management capacities, Fixed Assets and Inventory, etc.) as well as the overall executing agency were also all assessed as low risk.

Responsible Party: MoWIE 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.

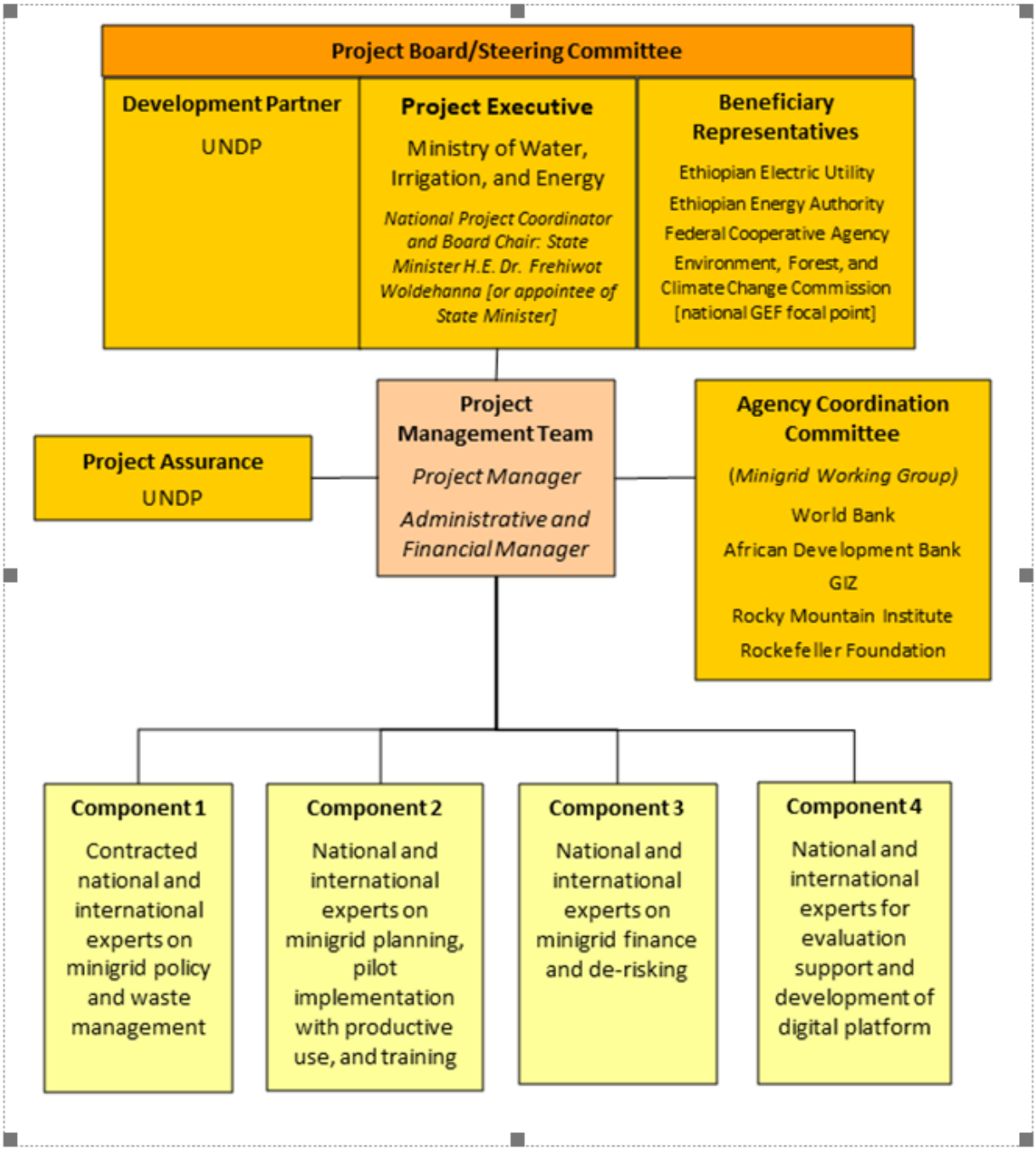
UNDP: UNDP is accountable to the GEF for the implementation of this project. This includes oversight of project execution to ensure that the project is being carried out in accordance with agreed standards and provisions. UNDP is responsible for delivering GEF project cycle management services comprising 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 Executing Agency;
- Provide direction and recommendations to ensure that the agreed deliverables are produced satisfactorily according to plans;
- Address project-level grievances;
- Approve the project Inception Report, Mid-term Review and Terminal Evaluation reports and corresponding management responses;
- Review the final project report package during an end-of-project review meeting to discuss lesson learned and opportunities for scaling up.

- Ensure highest levels of transparency and take all measures to avoid any real or perceived conflicts of interest.

- Designate the ?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. Frehiwot Woldehanna, 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 Ethiopian Energy Authority, the Ethiopian Electric Utility, the Federal Cooperative Agency, and the Environment, Forest, and Climate Change Commission. Furthermore, a beneficiary representative is also expected to take part in the AMP Regional Project activities. That representative will be determined at project inception[1].

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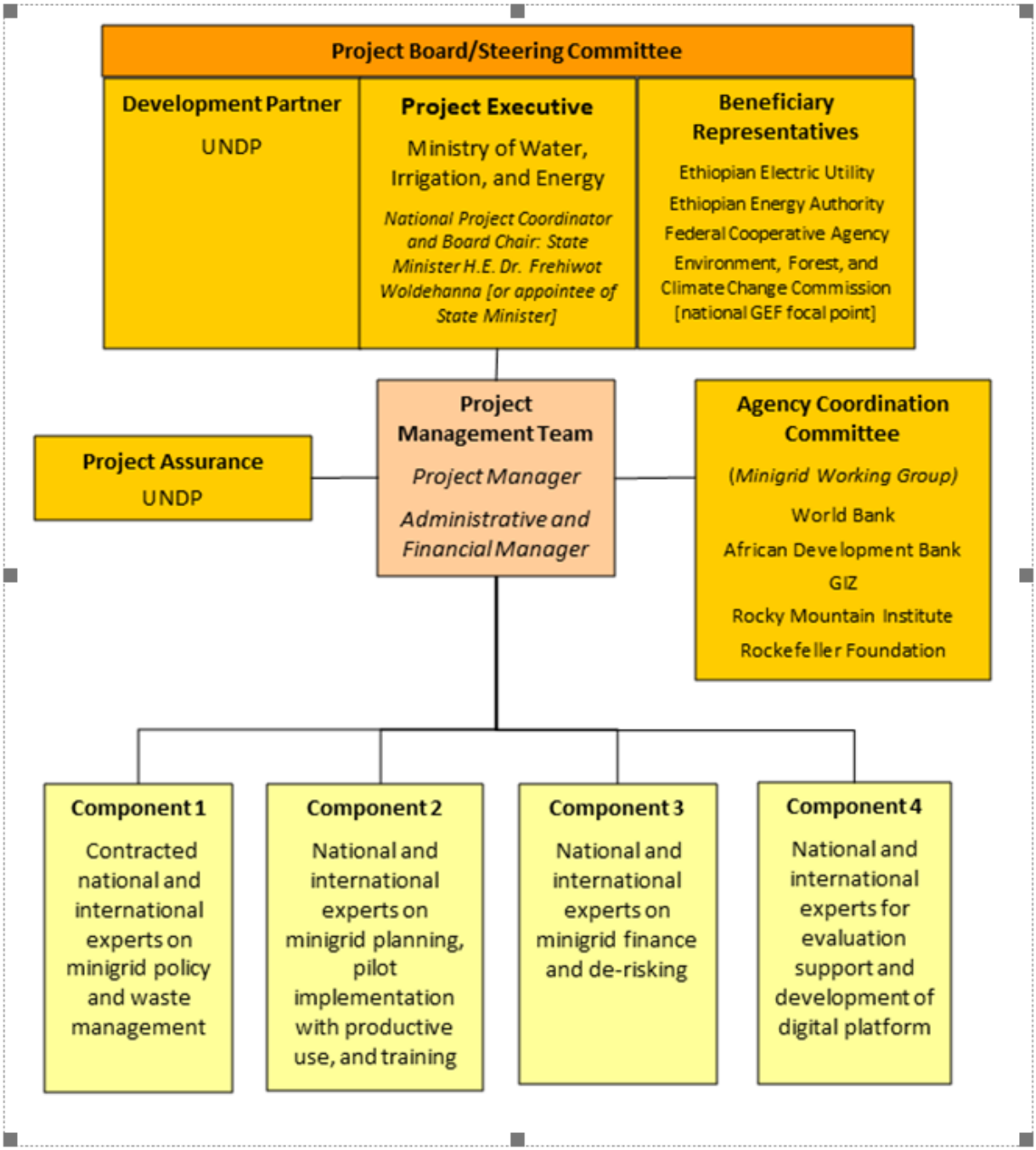
[1] This role will be additional to any role in the Ethiopia national project steering committee. It is recommended this role will be played by either the representative of the IP on the Ethiopia national project steering committee or the project manager/project coordinator of the project.



7. Consistency with National Priorities

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

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

This project and all of its components, outputs, and activities have been developed in direct consultation with the Ministry of Water, Irrigation, and Energy (MoWIE) of Ethiopia, as well as with MoWIE directorates on policy, electrification, and women and children. The project is directly aligned with the National Electrification Program 2.0 and its accompanying Minigrid Directive and geospatial mapping.

The project is also broadly consistent with national goals on green development and global climate change. Ethiopia ratified the Paris Agreement in 2017 as a non-Annex 1 country. Ethiopia?s mitigation efforts are rooted in its ?Climate Resilient Green Economy? (CRGE) strategy, published in 2011. This strategy, along with its Paris Agreement Nationally Determined Contribution (NDC), is currently under revision.[1]

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[1] https://climateactiontracker.org/countries/ethiopia/

8. Knowledge Management

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

Outputs 4.3, 4.4, and 4.5 collectively embody the knowledge-management approach for the project. Please see Section 4 of the Project Document (Component 4 for more details. The same information is presented above in this Request for CEO Endorsement in Section 1 (Project Description), item 3 (alternative scenario). The budget for these elements of Component 4 is $173,000 over the four-year project period.

The project will receive extensive support from the regional AMP with regard to knowledge management. Such support will include, but not be limited to, the following.

1. 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.
2. 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.
3. 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.

It is expected that coordination with the regional AMP will lead to the widespread sharing of lessons learned and best Already the AMP reflects lessons learned with regard to minigrid development and business models, productive use, social and environmental safeguards, and overall project strategy from across the continent. This learning process will continue in Ethiopia not only via the regional AMP

knowledge-sharing network, but also from the emerging body of knowledge from other donor-funded minigrid projects in Ethiopia, especially ADELE (World Bank) and AMAP (African Development Bank). Donor coordination is explicitly included in the project management and governance framework.

9. Monitoring and Evaluation

Describe the budgeted M and E plan

The project results, corresponding indicators and mid-term and end-of-project targets in the project results framework will be monitored annually and evaluated periodically during project implementation. If baseline data for some of the results indicators is not yet available, it will be collected during the first year of project implementation. The Monitoring Plan included in **Annex 5** of the Project Document details the roles, responsibilities, and frequency of monitoring project results.

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

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

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

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:

1. 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.

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

3. Review the results framework and monitoring plan.

4. 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.

5. 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.

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

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

8. Formally launch the Project.

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

GEF Core Indicators: The 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[2] and the GEF policy on public involvement[3].

Linkages with the Regional Project: the Ethiopia project?s M&E Activities will also establish linkages with the AMP Regional Project. The project will share M&E information with the AMP Regional Project as follows:

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

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

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

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

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

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

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

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

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

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

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

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

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

b. Review and provide feedback on terms of reference and draft evaluation reports shared by the project PMU to ensure project-level evaluation will be undertaken in compliance with UNDP requirements.

c. Make themselves available for interviews and consultation in the context of national project mid-term and terminal evaluations.

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

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

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

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 [Covered by the salary of the Project Manager]	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	

10. Benefits

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

The benefits of providing access to clean energy in rural areas are multiple. Access to electricity can improve socio-economic conditions through its influence on key components of poverty, namely health, education, income and environment. Electricity access provides avenues for participation in the economy, providing information access, increased connectivity and communication, access to banking and credit systems and local opportunities for skilled and educated workers. Rural electrification is generally associated with improved gender equity and women?s empowerment, creating opportunities for girls to access education and, for women more generally, improved safety and income diversification along with the opportunity to engage in microenterprise creation and other income-generating activities.

Clean energy solutions ensure these benefits are achieved with limited impact on the environment and by active displacement of more harmful fuel sources. Socioeconomic benefits in turn increase local stakeholder support for minigrids, ideally creating a sense of ownership, gratitude and pride in minigrids. Indeed, the successful operation of mini-grids requires continuous collaboration between operators and end-users. In the design of the pilots under the AMP, it is 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 mini-grids will be located, to obtain the necessary local support and ensure sustainability and longevity of the intervention.

The AMP is expected to yield the following socioeconomic benefit, as shown in the Project Results Framework.

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)**	31,611 people (of which 50% women) -------- 30,475 people (residential) 200 people (social) 936 people (commercial/PUE) 31,611 people (total) -------- 6,095 connections (residential) 50 connections (social) 312 connections (commercial/PUE)) 6,457 connections (total)

11. Environmental and Social Safeguard (ESS) Risks

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

Overall Project/Program Risk Classification*

PIF	CEO Endorsement/Approval	MTR	TE
	High or Substantial		

Measures to address identified risks and impacts

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

Supporting Documents

Upload available ESS supporting documents.

Title	Module	Submitted
ANNEX 10 - ESMF for 10 UNDP AMP Child Projects_06Oct2021_ETH	CEO Endorsement ESS	
PIMS 6338 Ethiopia ANNEX_06-SESP-Oct 2021	CEO Endorsement ESS	
PIMS 6338 ANNEX_06-SESP-2021_clean and cleared	CEO Endorsement ESS	

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

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

Table 1: Council Comments and Responses

Council Comments (Germany):	

1. Comment: *"Germany requests that the risk and co-financing sections of the document are revised to provide more information about how the project implementers intend to mobilize the proposed finance and what alternatives will be pursued in the event of delays or changes to the indicative funds. With around 344 Mio. USD, provided by 51 financiers, a well-managed and guaranteed flow of co-financing will be crucial to the project?s success. However, at this stage, co-financing sources and amounts are still indicative, thereby giving no assurance that finances will be made available."* **Response**: Indeed, co-financing and partnerships with the private sector and capital providers will be critical to the program?s success. During the PPG phase, discussions with co-financiers have been deepened and formalized. Details on this have been captured on this in both the CEO Endorsement request and Project Document. Measures to ensure that co-financing materializes will be addressed as follows, at the regional project and national project level: Regional project measures: (i) The AMP regional project will, as part of its monitoring activities under Component 5, track overall co-financing for the program, including co-financing for the regional project as well as for national projects. As per the regional project?s Stakeholder Action Plan (Annex 8), the regional project will be in a position to identify new sources of co-financing as a mitigation action for any of the sources confirmed at CEO Endorsement stage that do not materialize during implementation. (ii) UNDP is part of the Minigrid Funders Group (MGF), which represents the main donors and development agencies active in minigrids, which will provide a mechanism to coordinate with other key funders in the minigrids sector. (iii) UNDP?s oversight team for the regional project, and the regional project?s PMU, will monitor the realization of co-financing on an annual basis in the GEF PIR, and in the mid-term and terminal evaluation. (iv) The regional project?s Board is tasked in its TOR with tracking and monitoring co-financing. Ethiopia national project measures. The risk analysis for the AMP in Ethiopia includes consideration of co-financing risk. The listed co-financing commitments from MoWIE, UNDP, and the African Development Bank are already approved and appear to be secure for future timely disbursements. Additional co-financing commitments from donor agencies and cooperatives will be secured and monitored during project implementation. The project will also take the following steps to manage co-financing risk. (i) UNDP?s Country Office, and the national project?s PMU, will monitor the realization of co-financing on an annual basis in the GEF PIR, and in the mid-term and terminal evaluation. (ii) The national project?s Board is tasked in its TOR with tracking and monitoring co-financing.	Ethiopia CEO endorsement request: Part I, Section C Part II, Section 6 (institutional management and coordination) Ethiopia national Project Document: Section IV, Results and Partnerships, section on risk Section VII, Governance and Management Arrangements Regional project document: Section IV. RESULTS AND PARTNERSHIPS: - Description of Component 5); - Key Risks (Table 9)

2. Comment: *"Germany requests **clear identification of relevant stakeholders for all countries and all program components**, including regional and national agencies, technical stakeholders (implementation phase), strategic partners and relevant companies for e.g. capacity building. The program includes 11 African countries and numerous stakeholders. For some countries, relevant ministries and relevant technical implementation partners have been appointed, for others not."* **Response**: All relevant stakeholders have been identified for Ethiopia and included in a comprehensive Stakeholder Engagement Plan (see Annex 9 of the Project Document). Stakeholders identified as partners and potential partners are also highlighted in the Project Document, in Section V. The Executing Agency for Ethiopia has been confirmed as the Ministry of Water, Irrigation and Energy.	CEO endorsement/ approval request document: - (Part II, Section 6 - Institutional Arrangement and Coordination) Project Document: Section VII (Governance and Management Arrangements) and Stakeholder Engagement Plan (Annex 9)

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

4. Comment: *"Experiences with implementing mini-grids in Africa have proven that high financial costs are linked to high financial risks in local markets. The proposal considers the risk, but* ***Germany recommends that special attention should be given to financial risk reduction and risk-hedging approaches****. The risk section should be revised accordingly.* ***The lack of skilled technical staff is a further risk that requires greater consideration****. Germany recommends a greater focus on capacity building for skilled technicians."* **Response**: Effectively and efficiently addressing investment risks will be key to transforming local minigrid markets. AMP?s design - both at national and regional project levels - will use UNDP?s innovative Derisking Renewable Energy Investment (DREI) framework to identify, quantify and then target the underlying risks that are driving high financing, investment and operation costs. The DREI framework facilitates selection from a menu of possible policy and financial derisking instruments which can then reduce, transfer of compensate for these risks. Following the performance of a DREI techno-economic analyses in Ethiopia in year 1, in Output 1.3, findings can then shape follow-on project and partner activities,, especially in Component 3. Lessons learnt at national level in each country will be aggregated into regional knowledge products by the AMP Regional Project and disseminated widely. As advised, the project also includes a full output on capacity building for in-country minigrid technicians (Output 2.3). This has indeed been confirmed by multiple national partners as an area of need.	Ethiopia national Project Document: Section IV. RESULTS AND PARTNERSHIPS ? Description of Output 1.3 and Output 2.3
Council Comments (Norway/Denmark):	
5. Comment: *"USD 1,303,576 is budgeted for Program Management Cost (i.e. ca. 5%)* *presumably for implementing the various components"* **Response**: Comment targeted at program level and addressed in the regional project response. Details of the Ethiopia AMP co-financing, fees and Project Management Costs are included in the documents.	

6. Comment: *"USD 2,181,178 in addition is requested from the UNDP, i.e. ca. 8.3% - is this on top of the fee above? "* **Response**: Comment targeted at program level and addressed in the regional project response. Details of the Ethiopia AMP co-financing, fees and Project Management Costs are included in the documents.	
7. Comment: *"Estimated co-financing is USD 344,310,000 ? of this only about USD 95 mill is loans (from WB, GCF, AfDB and GIZ), or ca. 28%. This is to be expected as there are still not strong business models for mini-grids without significant grant financing. "* **Response**: Agreed. Minigrids still require grant financing and concessional lending which is why the co-financing sources identified for AMP include a mix of grants and loans with loans representing a smaller fraction of the total co-financing.	

8. Comment: *"Output 2.1 stipulates that ?Pilots developed, including on productive use/innovative appliances and modular hardware/system design, leading to cost-reduction in mini-grids? ?* ***are there not a lot of lessons that can be gained from existing mini-grid programs now****? "* **Response**: While the program builds on lessons learned from previous projects and programs, minigrid markets in many countries overall remain immature, and there is a strong need for continued piloting of minigrids. The emphasis for minigrid pilots (Output 2.1) will be on piloting and showing proof-of-concept business models. To provide a better recount of lessons learned the program builds off from, a section on lessons learned has been added to regional project document, section III Strategy.	Regional Project Document: Section III. STRATEGY

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

10. Comment: ***"How will the implementers ensure that markets are not undermined?*** *There are currently several mini-grids invested in by commercial actors (e.g. Norfund in Madagascar - https://www.norfund.no/newsarchive/lighting-up-madagascar) and the program should provide assurances that it will not undermine markets through (**overly) subsidized** new mini-grids (e.g. if a few villages are connected to a mini-grid which has been commercially invested in and pay a relatively high tariff, **it can lead to discontent** if another few nearby villages are connected to a new mini-grid that due to a higher level of grant financing pay a lower tariff)."*	
Response: Risk of excessive subsidization of new minigrids. In order to risk any over subsidization, the level of subsidy that will be applied to GEF ?Investment? (INV) funds will be based on a minimum concessionality principle. This principle can be achieved methodologically in different ways, for example by ensuring LCOE parity with a reference tariff; or based on willingness/ability to pay (which may be determined by a study during implementation). Such methodological assessments will be part of an overall package of financial due diligence/assessments that will be performed during the tender process to select recipients of pilot support. Each project?s CEO endorsement/approval request document (and UNDP Project Document) elaborates on this principle and establishes the need for each national project to develop, in close collaboration with other stakeholders and support from the AMP Regional Project, a detailed project plan (the project?s ?Minigrid Pilot Plan?) for advancing the minigrid pilot(s). Among other key aspects, the project?s Minigrid Plan Pilot Plan will determine the project?s approach to ensure minimal concessionality for the level of GEF INV support to the pilot(s). The project?s Minigrid Pilot Plan will first be reviewed for clearance by UNDP (CO and BPPS NCE), and then shared with the Project Board.	Ethiopia national Project Document: Section IV. RESULTS AND PARTNERSHIPS ? Description of Component 2]
Potential social discontent on tariffs. Even when avoiding the risk of over subsidization of minigrid pilots by applying the minimum concessionality principle, there is a possibility that new minigrids have lower tariffs than existing minigrids which were developed with a lower grant element and/or in general incurred in relatively higher costs. As minigrids scale, and costs decline over time, electricity tariffs (particularly cost-reflective electricity tariffs) are expected to decline as well. Mitigation for this risk comes from the systematic national dialogue that national projects will promote and support under Component 1, concretely under Output 1.1 (national dialogue on cooperative minigrid delivery models). Results from activities implemented in parallel under the other outputs will loop their respective (pre-	Ethiopia national Project Document: Section IV. RESULTS AND PARTNERSHIPS ? Description of Component 1, Output 1.1

Council Comments (Canada):	
<u>11. Comment</u>: *"Mini-grids can have important impacts on development, including on energy access, agriculture, health and education.* ***It would be interesting if the project could explore opportunities to make further linkages with rural development programs****."* **<u>Response</u>**: Indeed, energizing productive uses of energy in rural communities unlocks agricultural value and rural economic development that initiates a virtuous cycle of growth: increased and more predictable demand for electricity that improves the viability of minigrid operations, lowers the costs of supply and in turn improves affordability and gives more people access. Accordingly, rural development and associated socioeconomic benefits from minigrids are an explicit focus of the AMP in Ethiopia. This focus is reflected not only in the Project Results Framework (targets for beneficiaries), but also in specific outputs (especially support for productive use in Component 2) -	Ethiopia national Project Document: Section IV. RESULTS AND PARTNERSHIPS ? Description of Component 2

<u>12. Comment</u>: *"The mini-grids program has value for engagement where there are market* *failures,* ***and there should be entry points for the private sector****.* *The project is also was well-aligned with Ethiopia?s Growth and Transformation Plan and its objective of ?Building Climate Resilient Green Industry? and ?Expanding Energy Infrastructure and Ensuring its Quality?.* **<u>Response</u>**: We agree with this statement. AMP seeks to scale commercial and private investment in minigrids. Market failures will be identified and addressed. The design and activities of the AMP in Ethiopia seeks to create multiple entry points for the private sector. This includes (but is not limited to): - Output 1.1 on national dialogue, where cooperative delivery models will be explored and identified that engage the private sector. - Output 1.3 on DREI techno-economic analyses, where the private sector will undergo structured interviews on their risk perceptions. - Output 2.1 on cooperative-owned minigrid pilots, where possibly private sector involvement would include minigrid developers and operators as well as cooperatives themselves - Output 2.3 on training for minigrid developers and operators The alignment with Ethiopia?s Growth and Transformation Plan and strategies on climate resilient green industry and energy infrastructure is well noted, and continues to be reflected in the final Project Document.	Ethiopia national Project Document: Section IV. RESULTS AND PARTNERSHIPS
Council Comments (United States):	

13. Comment: *"The proposal addresses social acceptance risk but offers the use of policy and financial de-risking measures as a way to reduce cost, thereby increasing social acceptance risk. It does not address the value of messaging or public promotions and education campaigns to lower that risk further. Also, the program mentions working groups, but does not elaborate on make-up of the groups or state a commitment that the working groups will include representatives from local and community consumer and user stakeholders. Reviewers suggest a mechanism to ensure these groups include consumer stakeholders, indigenous representatives, and local authorities to educate and seek input on unexpected effects or consequences of the project at the local level."* **Response**: AMP Ethiopia has considered risks arising from lack of awareness and resistance to renewable energy and minigrids in communities, among other risks driving high costs for minigrid development. Social acceptance issues are usually due to due to unfamiliarity with electricity and renewable energy sources; mis-information/perceptions and lack of awareness for mini-grid offerings; resistance from incumbent businesses (e.g., diesel based generation) and users (e.g., SHS), which can get disrupted by minigrids. AMP Ethiopia seeks to address this risk by engaging and consulting via various targeted approaches with a diverse array of stakeholders, including representatives from local and community consumer and user stakeholders as per the Stakeholder Engagement Plan (Annex 9), to obtain input and to help foresee risks as noted. It also includes a grievance redress mechanism. In addition, salient among opportunities to engage and consult with representatives from local and community consumer and user stakeholders, is the national dialogue on cooperative delivery models (Output 1.1).	Ethiopia national Project Document: Section IV. RESULTS AND PARTNERSHIPS and Annex 9 (Stakeholder Engagement Plan)

14. Comment: *"Finally, the program will promote a value chain approach to technology transfers that will integrate local labor and local industries / service providers in the development of solar PV-battery minigrids. Reviewers note that monitoring the value chain periodically to ensure sufficient local integration (or make the necessary adjustments) will be important to the success of the project. GEF may want to consult with experts at the U.S. Department of Energy?s Office of Electricity, which works with U.S. state and local electricity officials and industry groups, to share data and best practices"* **Response**: Local labor and industries, together with local private sector developers and service providers, will be a key element in the long term viability and sustainability of the minigrid market in Ethiopia. At the national project level, the importance of value chain development is indeed reflected in the final Project Document for Ethiopia. The specific value chains will be analyzed and monitored periodically for specific cooperative-owned pilots to be supported by the project under Output 2.1. In addition, the project explicitly seeks to build skilled labor pools via its training activities in Output 2.3. At the regional project level, component 1 ?Knowledge Tools? will curate and disseminate materials and reports detailing examples of good practice in this area. The work developed by the U.S. Department of Energy?s Office of Electricity, with U.S. state and local electricity officials and industry groups, is one of the resources that will be leveraged for this purpose. In addition, supply chain actors and the private sector are stakeholders that will participate as members of the AMP community of practice and benefit from South-South cooperation, knowledge sharing, identifying common challenges, and reviewing outputs of the AMP.	Ethiopia national Project Document: Section IV. RESULTS AND PARTNERSHIPS Regional Project Document: Section IV. RESULTS AND PARTNERSHIPS

Table 2: STAP Comments and Responses

1. Comment: *Mini-grids have much potential to bypass old development pathways for electrification. However, there is also growing literature on their pitfalls, which should be addressed. As with other GEF project proposals, more effort is needed to engage with the peer-reviewed literature on the topics. Examples of literature in this genre include:* ? *Mini-Grids for the Base of the Pyramid Market: A Critical Review* ? *(https://www.mdpi.com/1996-1073/11/4/813);* ? *Mini-grid based off-grid electrification to enhance electricity access in developing countries: What policies may be required? (https://www.sciencedirect.com/science/article/pii/S0301421516301781);* ? *Rethinking the sustainability and institutional governance of electricity access and mini-grids: Electricity as a common pool resource* ? *(https://www.sciencedirect.com/science/article/pii/S2214629617303638);* ? *Institutional Innovation in the Management of Pro-Poor Energy Access in East Africa (https://www.sussex.ac.uk/webteam/gateway/file.php?name=2015-29-swps-gollwitzer-etal.pdf&site=25).*	Regional Project Document: Section IV RESULTS AND PARTNERSHIPS, Box 2.
Response: The program design has been informed by extensive literature review and consultations with technical experts and development partners. This has informed (1) the overall design of the program, as well as (2) the program?s three main key areas of opportunity: **(i) National dialogues on minigrid delivery models; (ii) Productive use of electricity; and (iii) Data & Digitalization,** and in turn been translated to national projects. This literature exercise review is documented in the AMP regional project document, given its overall knowledge management function for the program. 1. Overall Program Design ? Key Literature - GIZ, GET.transform (2020). A Renewable Energy Minigrid Technical Assistance Guide. Take-aways from 15 years of GIZ support in minigrid market development. April 2020 (link) - AMDA (2020). Benchmarking Africa?s minigrids. - SEforAll, BNEF and MGP (2020). State of the Global mini-grids Market Report 2020. Trends of renewable energy hybrid mini-grids in Sub-Saharan Africa, Asia and Island Nations. (link) - IRENA (2016). Innovation Outlook: Renewable Mini-grids. (link) - ESMAP (2019). Mini Grids for half a billion people. Market Outlook and Handbook for Decision Makers. Technical Report 014/19. (link)	

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

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

4. A brief description of the planned activities. Do these support the project?s objectives? **Comment**: Nicely described with clear objectives. **Response:** NA	
5. A description of the expected short-term and medium-term effects of an intervention. **Comment**: These are adequately provided. **Response:** NA	
6. A description of the products and services which are expected to result from the project.Is the sum of the outputs likely to contribute to the outcomes? **Comment**: Adequately provided. **Response:** NA	
7. Is the baseline identified clearly? **Comment**: Baselines are linked to earlier Child projects. **Response:** NA	

8. What is the theory of change? **Comment**: There is a growing literature on the barriers to minigrid adoption. As with other GEF project proposals, more effort is needed to engage with the peer-reviewed literature on the topic. An example of an article in this genre which is open source is linked here: https://www.mdpi.com/1996-1073/11/4/813 - **Response**: It is indeed critical to have a good understanding of minigrid barriers. AMP?s overall approach to minigrid barriers has been informed by (1) UNDP?s own Derisking Renewable Energy Investment (DREI) Framework for off-grid electrification (link), a leading publication in the field which identifies a taxonomy 9 investment risk and 25 investment barriers for minigrids, itself based on extensive consultations and literature review. (2) An independent review of recent literature on the subject, including the documents listed below: - GIZ, GET.transform (2020). A Renewable Energy Minigrid Technical Assistance Guide. Take-aways from 15 years of GIZ support in minigrid market development. April 2020 (link) - AMDA (2020). Benchmarking Africa?s minigrids. - SEforAll, BNEF and MGP (2020). State of the Global mini-grids Market Report 2020. Trends of renewable energy hybrid mini-grids in Sub-Saharan Africa, Asia and Island Nations. (link) - IRENA (2016). Innovation Outlook: Renewable Mini-grids. (link) - ESMAP (2019). Mini Grids for half a billion people. Market Outlook and Handbook for Decision Makers. Technical Report 014/19. (link) - The World Bank, AFD (2019). Electricity Access for Sub-Saharan Africa. (link) - RMI (2018). Minigrids in the Money: Six Ways to Reduce Minigrid Costs by 60% for Rural Electrification (link) - GET.transform (2021). Nigeria Case Study: Financing Instruments for the Mini-Grid Market, (link) Please also see the earlier response to STAP Comment #1.	Regional Project Document: Section IV. RESULTS AND PARTNERSHIPS, Box 2.

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

10. Are the benefits truly global environmental benefits, and are they measurable? **Comment**: The proposal identifies carbon mitigation benefits with adequate referencing of methods. Tradeoffs are not discussed but should be, in terms of reliability failures that can happen with mini-grids. What are the backups to prevent diesel generators from still being frequently used? Resilience needs to be built into the grid architecture to address times of power outages. **Response**: Minigrids are generally characterised by a very high availability. A recent report by the Africa Minigrid Developers Association (Benchmarking Africa?s Minigrids) shows that uptime of all monitored minigrids is 99% on average, which is significantly higher than all national interconnected grids. When power outages occur in minigrids, it is rarely due to inverter failure, but rather because the system shuts down due to overload or low battery state-of-charge (if there is no diesel generator), or because the diesel generator fails. Recent evidence is revealing that diesel generators are now more prone to failure than the renewable energy components. To prevent power outages, a minigrid should be sufficiently dimensioned. This can lead to larger amounts of excess energy being available at non-peak times, which cannot normally be used and reduce the overall system efficiency. Currently, new approaches are being developed that take advantage of artificial intelligence to manage loads, based on machine learning and stochastic optimization. Examples include intelligent control of diesel generators to minimise fuel consumption, demand side management to precisely control deferrable loads (e.g. water pumps) that can consume excess energy. All this leads to minimising outages and the need to use diesel generators. In the national project in Ethiopia, reliability considerations will be considered in project design, with an emphasis on appropriate sizing of generation capacity and storage, in order to obviate the need for diesel backup generators. No GEF funds will be used to support diesel generation. -	

11. Is the project innovative, for example, in its design, method of financing, technology, business model, policy, monitoring and evaluation, or learning? **Comment**: Proponents have partnered with Rocky Mountain Institute which has a distinguished record of innovative approaches to energy policy and there are clear highlights of scaling out (even though they note this as scaling ?up?). There is a focus on finding innovative ways of cost reduction and also to consider financing linkages between minigrids to promote resilience following the Rockefeller Foundation?s CrossBoundary Energy Access (CBEA) investment projects. **Response:** NA	

12. Have all the key relevant stakeholders been identified to cover the complexity of the problem, and project implementation barriers? **Comment**: Adequate presentation of stakeholders through the UNF Minigrid Partnership. However, diesel generation industry is quite widespread in Africa and how to ensure they don?t sabotage prevalence of project and have incentives for new livelihoods should be considered. - **Response**: Experience shows that deep-rural villages are usually not a market for the diesel generator industry as such. In many villages, however, individual owners of diesel or petrol generators can be found selling electricity to the neighborhood(s). These business models no longer work when a minigrid supplies the village with electricity. However, there is a significant demand for skilled labor in the minigrid sector. The local diesel generator operators can become important here, as they have the technical know-how on the one hand and know the respective village very well on the other. These skills can be put to good use, for example, for the rapid establishment of PUE, or in the context of rural industrialization approaches (e.g. KMM). In the national Project Document for Ethiopia, consideration of existing diesel generation and associated livelihoods is taken into account in the Risk Log (risk number 19), the Social and Environmental Screening (Annex SESP risk number 16), the Stakeholder Engagement Plan (Annex 9) and the Environmental and Social Management Framework (Annex 10). -	Ethiopia national Project Document: Section IV. RESULTS AND PARTNERSHIPS, section on key risks; Social and Environmental Screening (Annex 6); UNDP ATLAS Risk Register (Annex 7); Stakeholder Engagement Plan (Annex 9); Environmental and Social Management Framework (Annex 10)
13. Have gender differentiated risks and opportunities been identified, and were preliminary response measures described that would address these differences? **Comment**: Yes ? there is a fairly detailed section on gender aspects of this project. projects. **Response:** NA	

14. Are the identified risks valid and comprehensive? Are the risks specifically for things outside the project?s control? **Comment**: Identified. Detailed climate risk assessment should be carried out. **Response:** - A climate risk assessment has been performed is reflected in the risks section of Section IV of the Project Document, as well as in the UNDP ATLAS Risk Register (Annex 7). -	Ethiopia national Project Document: Section IV. RESULTS AND PARTNERSHIPS, section on risks, and Annex 7 (UNDP ATLAS Risk Register)
15. Are the project proponents tapping into relevant knowledge and learning generated by other projects, including GEF projects? **Comment**: Good coordination details provided based on historical relations as well. projects. **Response:** NA	
16. What overall approach will be taken, and what knowledge management indicators and metrics will be used? **Comment**: Identified and details adequately provided. projects. **Response:** NA	

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

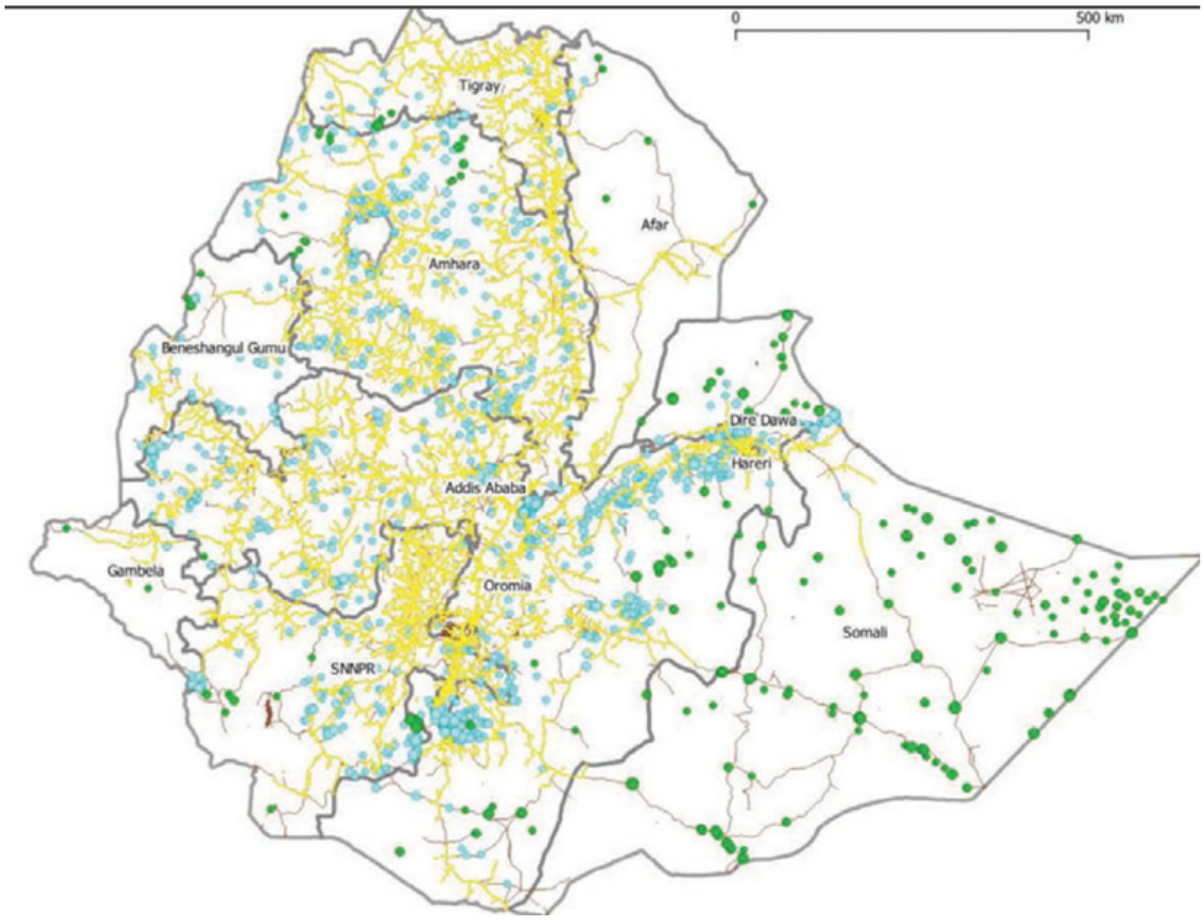
PPG Grant Approved at PIF: **100,000**			
Project Preparation Activities Implemented	***GEF/LDCF/SCCF Amount ($)***		
	Budgeted Amount	***Amount Spent To date***	***Amount Committed***
Technical assistance (design technical elements as well as all the required financial and administrative components of the project)	100,000	16,000	84,000

ANNEX D: Project Map(s) and Coordinates

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

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 to be developed by MoWIE in the time between project preparation and project inception. The AMP will identify specific sites from this map in conjunction with MoWIE and other national partners, as well as other donor agencies, during the first year of the project.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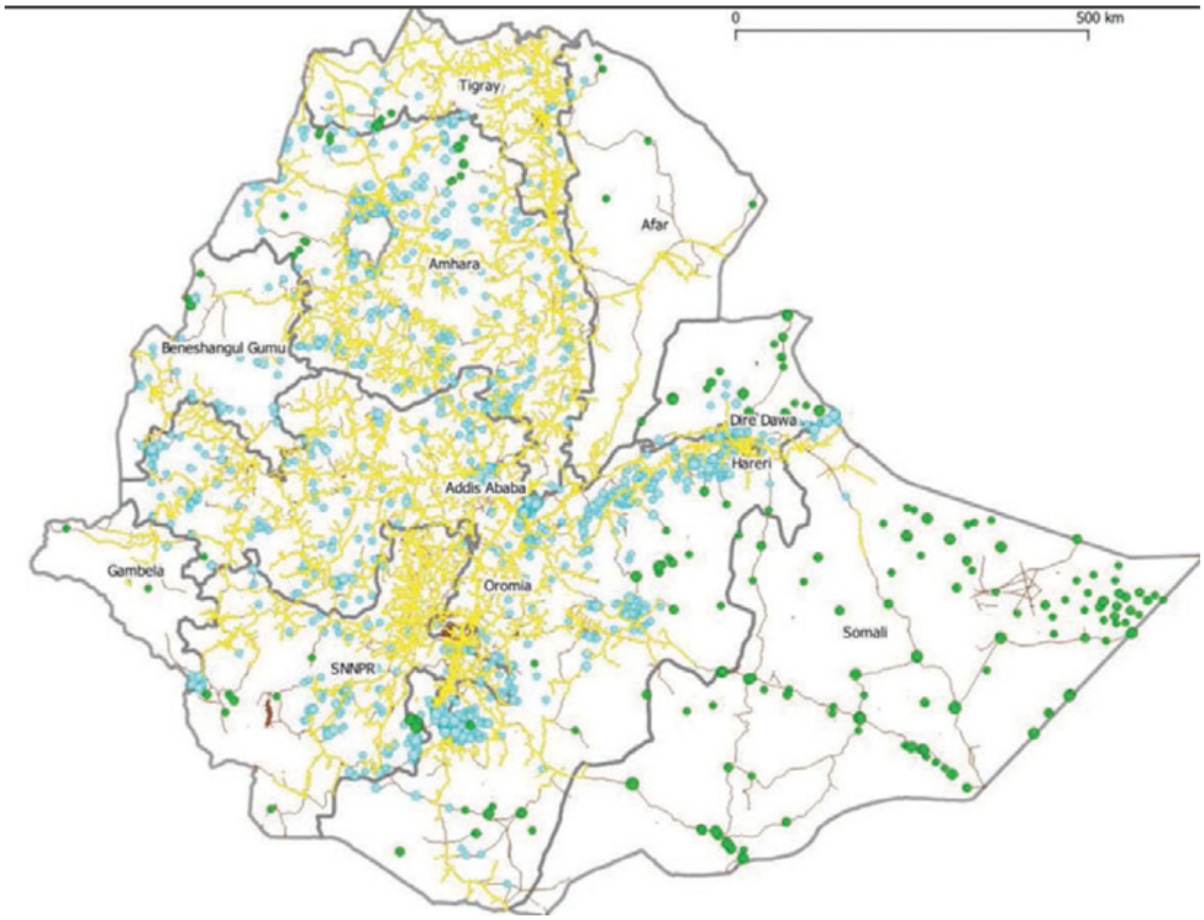

ANNEX E: Project Budget Table

Please attach a project budget table.

Expenditure Category	Detailed Description	Component (USDeq.)							Total (USD)	(Executing Entity receiving funds from the GEF Agency)[1]
		Component 1	*Component 2*	*Component 3*	*Component 4*	*Sub-Total*	*M&E*	*PMC*		

Equipment	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.)		1,132,568			1,132,568			1,132,568	Ministry of Water, Irrigation, and Energy
Equipment	Share of office furniture and computer equipment for Project Manager and Administrative and Finance Manager					-		6,658	6,658	Ministry of Water, Irrigation, and Energy
Contractual services-Individual	Full-time Project Manager salary at $2500/month for full project period					-		120,000	120,000	Ministry of Water, Irrigation, and Energy

Contractual services-Company	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)				150,000	150,000	15,000		165,000	Ministry of Water, Irrigation, and Energy

Contractual services-Company	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		615,000			615,000			615,000	Ministry of Water, Irrigation, and Energy
Contractual services-Company	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			238,000		238,000			238,000	Ministry of Water, Irrigation, and Energy

Contractual services-Company	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 20254. 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	402,000				402,000			402,000	Ministry of Water, Irrigation, and Energy

International Consultants	International consultants for Midterm Review (2023) and Terminal Evaluation (2025) -- Output 4.4					-	80,000		80,000	Ministry of Water, Irrigation, and Energy
Local Consultants	National consultants for Midterm Review (2023) and Terminal Evaluation (2025) -- Output 4.4					-	40,000		40,000	Ministry of Water, Irrigation, and Energy
Training, Workshops, Meetings	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.		7,000			7,000			7,000	Ministry of Water, Irrigation, and Energy

Training, Workshops, Meetings	Convenings for bank training -- 2 events per year in 2023-25, $800 per event for space rental and other costs			4,800		4,800			4,800	Ministry of Water, Irrigation, and Energy
Training, Workshops, Meetings	Costs of workshops including final conference (Outputs 4.4, 4.5)				20,000	20,000			20,000	Ministry of Water, Irrigation, and Energy

Training, Workshops,	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 $2500The total for this line item across all four project years is $20,000.	20,000				20,000			20,000	Ministry of Water, Irrigation, and Energy

Travel	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)	28,800				28,800			28,800	Ministry of Water, Irrigation, and Energy
Office Supplies	Office supplies					-		2,000	2,000	Ministry of Water, Irrigation, and Energy
Other Operating Costs	Annual NIM financial audit. This expense will be shared between the GEF grant and UNDP TRAC funding.					-		9,000	9,000	Ministry of Water, Irrigation, and Energy
Grand Total		**450,800**	**1,754,568**	**242,800**	**170,000**	**2,618,168**	**135,000**	**137,658**	**2,890,826**	

No.	Budget Note
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 20254. 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)
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 $2500The 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

ANNEX F: (For NGI only) Termsheet

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

ANNEX G: (For NGI only) Reflows

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

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

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