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INVESTING IN OUR PLANET

The Africa Minigrids Program



Program Rationale

Renewable energy minigrids ('minigrids'), and in particular solar-battery minigrids, offer great potential to address the 789 million people globally – including 548 million in sub-Saharan Africa – who currently don't have access to electricity. This minigrid opportunity is centered around falling hardware costs (solar modules, batteries, energy efficient appliances), disruptive digital trends (mobile money, digital platforms and data), and innovative private sector business models.

A key challenge to scaling minigrids is mobilizing private sector investment and accelerating the learning curve for the complex array of stakeholders involved in delivering modern electricity services.

Today, the minigrid market in Africa remains immature, with the private sector facing a range of barriers holding back investment. Except in a few markets, nearly all current investment in minigrids is in the form of grants and non-commercial, patient capital. If minigrids are to truly scale, there is a need to access large volumes of commercial financing, and in particular commercial debt.

Program Overview

The Africa Minigrid Program ("AMP") is a country-led technical assistance program for minigrids, active in an initial 18 African countries. AMP is expressly targeting early-stage minigrid markets, seeking to establish the enabling environment for subsequent private investment at scale.

The program's objective is to support access to clean energy by increasing the financial viability, and promoting scaled up commercial investment, in low-carbon minigrids in Africa, with a focus on cost-reduction levers and innovative business models.

This cost-reduction (in hardware costs, soft costs and financing costs), in conjunction with innovative business models, will increase capital flows to the profit of end-users, who will benefit from lower tariffs and expanded service compared with the baseline. This comprehensive programme is also a multi-partner effort. With GEF funding, UNDP will be implementing the programme together with Rocky Mountain Institute (RMI) and the African Development Bank (AfDB), linking up with a wide array of minigrid stakeholders in Africa and beyond.

The AMP is currently in the final design stage and will commence implementation in 2022 and continue until 2026.

Program Delivery Framework

The AMP will have a country-based focus, while also maximising opportunities for South-South/Triangular Cooperation and providing backstopping through an organised "chapeau" project (Figure 1). The program is comprised of two main elements:

- A Regional Project, structured as a 'Knowledge Management' platform, to support the program's National Projects, and the Africa minigrids market more generally, through four core sets of activities: (i) knowledge tools for both public and private actors; (ii) tailored technical assistance to countries; (iii) specialized regional Communities of Practice; and (iv) support for digitalization in the minigrids market.
- 18 National Projects, each with a common architecture consisting of four components: (i) policy and regulations, (ii) business model innovation and private sector, (iii) digitalization, and (iv) innovative finance for minigrids scale-up, and (iv) digitalization, knowledge management and monitoring and evaluation.

Figure 1: AMP Design



Minigrid Pilots

Under Component 2, each National Project includes support for investments in up to three types of minigrid pilots (see Table 1) aimed at demonstrating cost-reduction opportunities. Depending on the market, minigrid pilots will be designed to demonstrate (for example) site selection, energy generation and storage technology options, distribution design, metering systems, value-chain embedded productive uses, demand stimulation, revenue diversification or innovative business models and regulatory approaches.

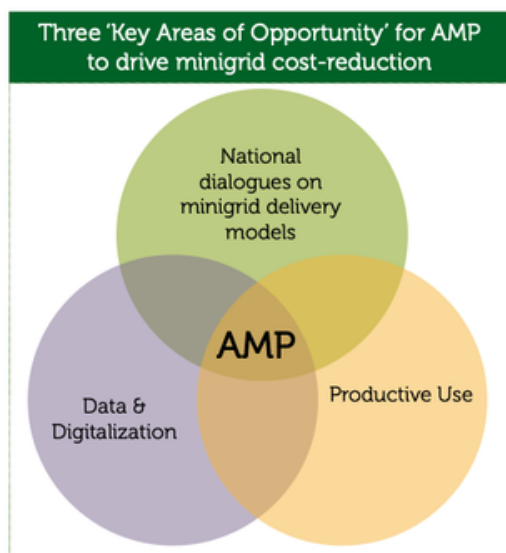
Table 1: 3 types of minigrid pilots under AMP

Type of minigrid pilot	Description
#1 Greenfield minigrids	Complete minigrid systems, including generation and distribution assets, as well as productive use equipment.
#2 Hybridized diesel minigrids	Retrofitting (i.e. hybridization) of existing diesel-based minigrids increasing the renewable fraction of power generation.
#3 Productive use overlays	New investments in productive use equipment to an existing minigrid generating additional income, improving user's ability to pay for services, and improving utilization of minigrid assets.

Key Areas of Focus

Within the national projects architecture, the program has been designed to emphasize - and seek to develop comparative advantages – across three 'key areas of opportunity' i.e., national dialogues on delivery models, productive use of energy and digitalization for minigrids (Figure 2). Each of these represent a niche contribution by the AMP that targets cost-reduction, and in this way is complementary to existing baseline activities supporting minigrid investment in Africa.

Figure 2: National Projects' architecture and areas of opportunity



Data & Digitalization Opportunity

At the regional project level, the AMP provides a unique opportunity to (i) collect data from a substantial sample of minigrids using a uniform set of metrics and guidelines and (ii) to aggregate data, derive insights from, and systematically disseminate knowledge with participating AMP countries and the broader minigrids sector in Africa. At the same time, the link between the regional project and 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.

Geographical Coverage

The primary form of country participation in the program will be as National Projects. The program will initially support a first round of 11 such countries approved in the GEF December 2019 work program.

These 11 countries are: Angola, Burkina Faso, Comoros, Djibouti, Ethiopia, Eswatini, Madagascar, Malawi, Nigeria, Somalia and Sudan. The 1st round national projects are expected to begin implementation in 1Q 2022.



1st ROUND: 11 GEF Dec 2019

Angola**
Burkina Faso
Comoros
Djibouti
Eswatini
Ethiopia
Madagascar**,
Malawi
Nigeria
Somalia
Sudan

**third-party-funded)

2nd ROUND: 7 GEF June 2021

Benin
Chad**
Niger,
Mali
Mauritania**
Sao Tome e Principe
Zambia

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

Another 7 countries have subsequently been identified for inclusion in a second round of national projects and have been approved by the GEF for inclusion in the June 2021 work program. Countries included in the second round are: Benin, Chad, Mali, Mauritania, Niger, Sao Tome and Principe, Zambia. The 2nd round of projects are expected to begin implementation in 1Q 2023 (with a 12-month lag with respect to the first cohort).

These 18 countries represent a diverse cross-section of African countries: both large as well as smaller markets; Anglophone and Francophone countries; small island developing states; and countries in post-crisis contexts. This can create a rich and diverse mix of contexts, perspectives and experiences in the program.

Expected Impact

The AMP aims to leverage \$650 million in cofinancing. Through its interventions, namely the minigrid investment pilots, the Programme aims to directly avoid 347,567 tons of carbon dioxide equivalent and reach 406,456 direct beneficiaries. Through its close work with government, communities and partners, it also seeks to generate indirect impacts on an even greater scale, with an estimated 29 million indirect beneficiaries and 26,981,449 tCO₂e emissions reductions enabled by its activities. This is in addition to climate resilience benefits and socio-economic benefits of minigrids for vulnerable communities, which are even more salient in a context of COVID-19 pandemic response and recovery.

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The Global Environment Facility (GEF) was established 30 years ago on the eve of the Rio Earth Summit to tackle our planet's most pressing environmental problems. Since then, it has provided more than \$21.5 billion in grants and mobilized an additional \$117 billion in co-financing for more than 5,000 projects and programs. The GEF is the largest multilateral trust fund focused on enabling developing countries to invest in nature, and supports the implementation of major international environmental conventions including on biodiversity, climate change, chemicals, and desertification. It brings together 184 member governments in addition to civil society, international organization, and private sector partners. Through its Small Grants Programme, the GEF has provided support to more than 25,000 civil society and community initiatives in 135 countries.

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