

AFRICA
MINIGRIDS
PROGRAM

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AFRICA MINIGRIDS PROGRAM



PROGRAM RATIONALE

Renewable energy minigrids ('minigrids'), and in particular solar-battery minigrids, offer great potential to address the 675 million people globally who currently don't have access to electricity – including 567 million, or more than three quarters of the world's unelectrified population, in sub-Saharan Africa. 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 nascent, 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 Minigrids Program ("AMP") is a country-led technical assistance program for minigrids, active in an initial 21 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 renewable energy 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 RMI and the African Development Bank (AfDB), linking up with a wide array of minigrid stakeholders in Africa and beyond.

With various initiatives active in this space, the AMP has been designed to be additional and complement ongoing efforts to develop minigrid markets across Africa, and will further collaboration and partnerships during program implementation.

The AMP will commence implementation in 2022 and continue until 2027. It is expected to prevent emissions of 1,045,000 tons of carbon dioxide equivalent (tCO₂eq) and reach 764,000 direct beneficiaries.

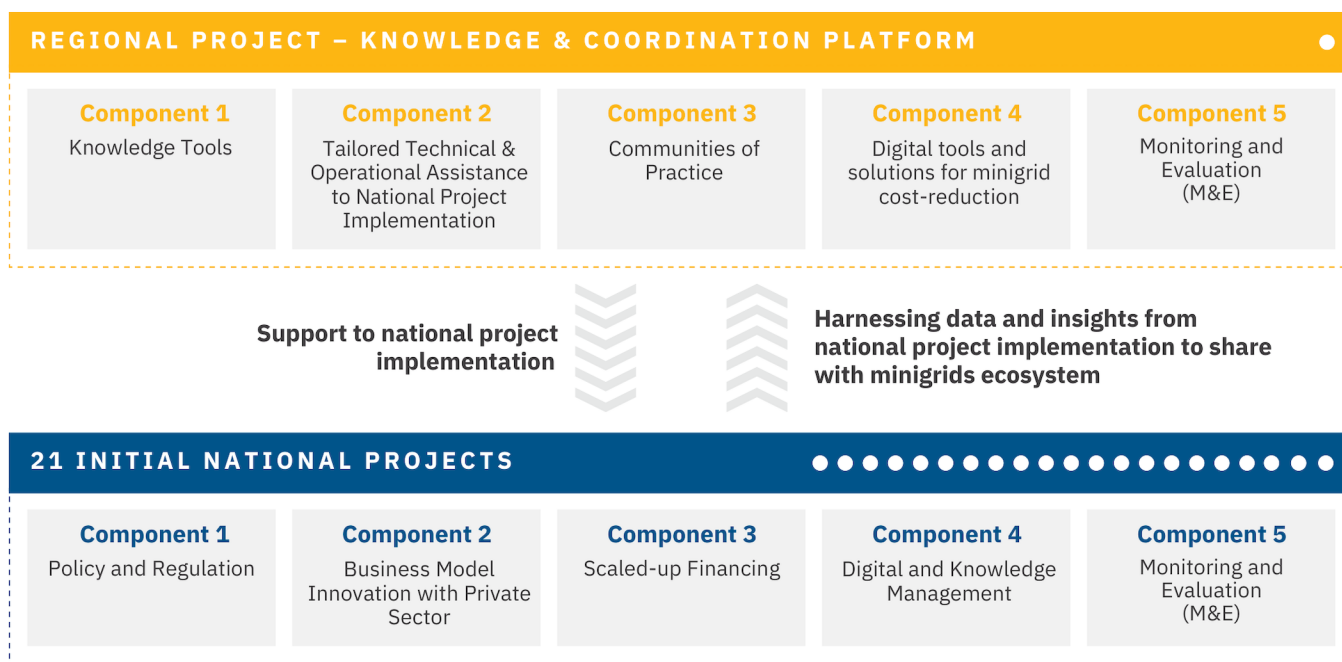
PROGRAM DELIVERY FRAMEWORK

The AMP will have a country-based focus, while also maximizing opportunities for South-South/Triangular Cooperation and providing backstopping through an organised "chapeau" project. 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.
- **21 National Projects**, each with a common architecture consisting of five components: (i) policy and regulations, (ii) business model innovation and private sector, (iii) innovative finance for minigrids scale-up, (iv) digitalization and knowledge management, and (v) monitoring and evaluation.



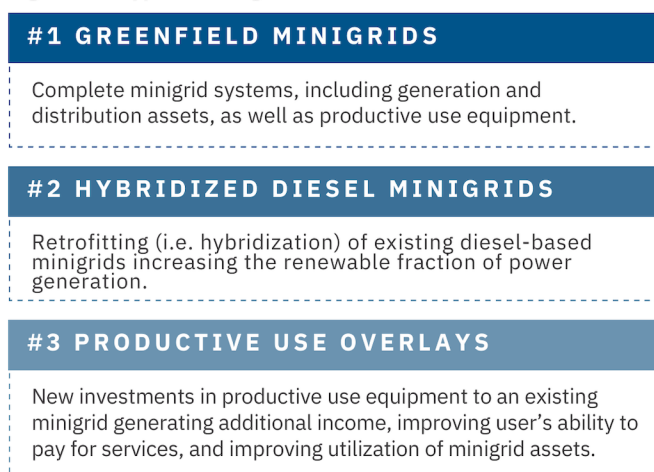
Figure 1: AMP Architecture



MINIGRID PILOTS

Under Component 2, each National Project includes support for investments in up to three types of minigrid pilots (see Figure 2) 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.

Figure 2: 3 Types of Minigrid Pilots under AMP



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 3). Each of

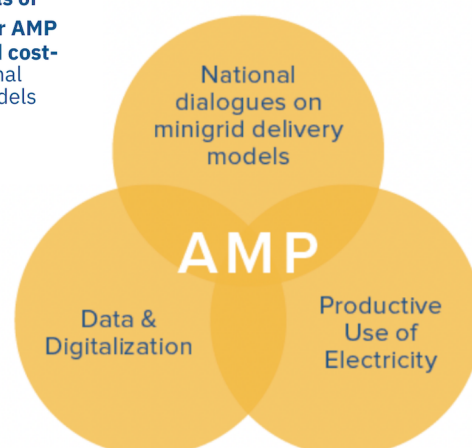
these represent a niche contribution by the AMP that targets cost-reduction, and in this way is complementary to existing baseline activities supporting minigrid investment in Africa.

DATA & DIGITALIZATION OPPORTUNITY

At the regional project level, the AMP provides a unique opportunity to (i) collect and aggregate data from a substantial sample of minigrids using a uniform set of metrics and guidelines and (ii) derive insights from national projects’ data, 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 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.

Figure 3: Key Areas of Opportunity

Three “Key Areas of Opportunity” for AMP to drive minigrid cost-reduction National dialogues on models



GEOGRAPHICAL COVERAGE

The primary form of country participation in the program will be as National Projects. The program is supporting a first round of 11 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.** Implementation of the 1st round national projects started in 2022. Another 7 countries have subsequently been included in a second round of national projects and have been approved by the GEF in the June 2021 work program. Countries included in the second round are: **Benin, Chad, Mali, Mauritania, Niger, Sao Tome and Principe, Zambia,** and their implementation is expected to start in 2023.

An additional 3 countries have been approved by the GEF in the June 2022 work program and are expected to begin implementation in 2024. Countries included in this third round are: **Burundi, Democratic Republic of the Congo (DRC), and Liberia.**

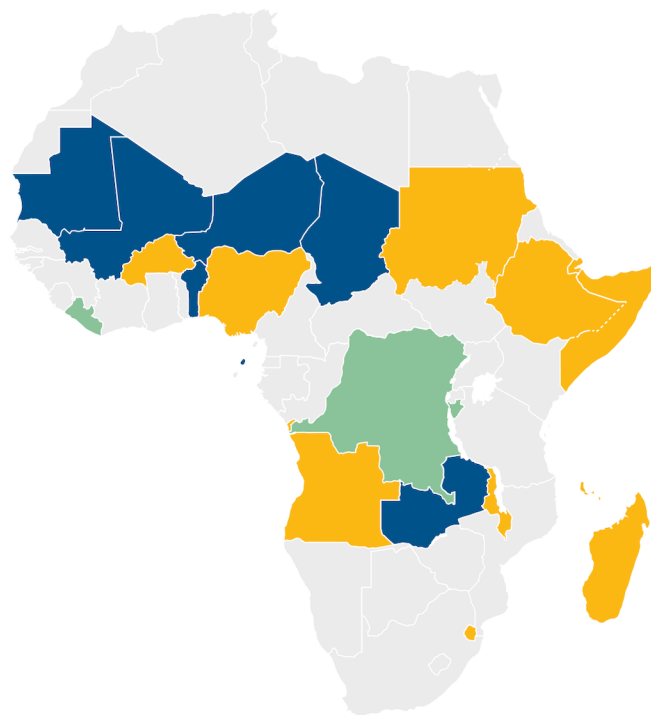
These 21 countries host 396 million people without electricity access—more than two thirds of the total unelectrified population of Africa. They also represent a diverse cross-section of African countries: both large as well as smaller markets; Anglophone, Francophone, and Lusophone countries; small 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.

THE MINIGRID MARKET OPPORTUNITY IN AMP COUNTRIES

UNDP modelling estimates there is significant potential for solar-battery minigrids in the Africa Minigrids Program's 21 countries. **Minigrids can serve as the least-cost approach to electrifying 265 million people in these countries by 2030. This represents a total \$65 billion investment opportunity, primarily from the private sector.**

Realising this minigrids potential in the Africa Minigrids Program's 21 countries is estimated to equate to the construction of **110,000 minigrids**, transforming communities by bringing electricity to more than **200,000 schools and clinics**, and driving economic growth with the electrification of close to **900,000 businesses**.

Through its interventions and its close work with governments, communities and partners, the AMP will contribute to helping countries realise this minigrid opportunity.



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**
DRC
Niger
Mali Liberia**
Mauritania**
Sao Tome e Principe
Zambia

3rd ROUND: 3 GEF June 2022

Burundi**
DRC
Liberia**

CONTACT

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As of October 2023.

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