

# POWER FOR ALL RESEARCH SUMMARY

The bankability of mini-grid business models is improving but regulation remains the biggest challenge

**POWER  
FOR  
ALL**



**306**

AVERAGE NEW CONNECTIONS  
PER MINI-GRID

**380 kWh**

AVERAGE ANNUAL  
CONSUMPTION PER  
CONNECTED HOUSEHOLD

**EUR 200**

LOWEST PER-CONNECTION  
COST FOR MINI-GRIDS

**EUR 93**

ANNUAL SAVING PER  
HOUSEHOLD

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Energy and Environment Partnership Trust Fund (EEP Africa) has financed 43 mini-grid projects in 10 countries in Southern and Eastern Africa. Their recently published report *Opportunities and Challenges in the Mini-grid Sector in Africa*<sup>1</sup> draws lessons from the EEP Africa portfolio and explains that infrastructure financing and regulatory environments are the main ‘make-or-break’ contributors to mini-grid bankability. Here we highlight key findings from the report:

### **Mini-grids in the EEP Africa portfolio are not only generating high-quality AC grid power, providing 24/7 electricity services, but also creating jobs and boosting local economy.**

- » Most mini-grids in the EEP Africa portfolio focus on providing 220-240V AC grid power, which allows for the use of large income-generating appliances such as refrigeration. (28)
- » The EEP Africa portfolio demonstrates that mini-grids can transform rural villages into local business hubs. Mini-grids spur local economy when its load centers around anchor clients of agro-processing or social facilities such as school or hospital. (21,35)
- » The 19 stand-alone mini-grids in the portfolio led to the creation of 685 direct jobs due to the commissioning of the projects, mostly youths and women. (21)
- » These 19 stand-alone mini-grids, also accounted for 5,821 new connections (averaging 306 connections per project). (21)
- » Results of EEP Africa’s portfolio show that a rural household can save up to EUR 93 per year by connecting to a mini-grid.

### **Mini-grids’ business models continue to improve with demand load profile management and operation optimization.**

- » To reach financial sustainability, most mini-grid developers are focusing on productive use of energy – such as providing energy efficient appliances or forming local business hubs - as a means to increase demand and generate sufficient revenue. (32)
- » The most financially sustainable mini-grids use an “ABC” strategy: first, identify and negotiate an agreement with an anchor load client (often in agro-processing); then identify, or help develop, small local businesses; and only last target domestic consumers. (33)
- » Smart metering, remote asset monitoring and pay-as-you-go technology platforms have significantly improved mini-grid operational efficiency. (29)

### **Regulatory risks, including licensing, permitting and integration into national electrification plans, make up the biggest challenge for the success of mini-grid.**

- » The time required to apply for required concessions, licenses and environmental approvals is substantial and has often delayed project development. (25)
- » In order to spur private investment, countries need to have clear and transparent guidelines for mini-grids to be connected to the national grid and compensated accordingly. (25)
- » National tariff frameworks are often not cost reflective, and therefore create a challenge for mini-grid developers to align their tariff structure with national standards. (23)
- » Among the 15 countries in which EEP Africa is active, Tanzania is the leading country in terms of policy environment for mini-grid developers, followed by Uganda and Rwanda. (22)

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By the Numbers:

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**Mini-grids require significant infrastructure investments but the availability and cost of private capital represent the main viability gap in project finances.**

- » On average, EEP Africa financed just under 40% of each mini-grid project budget. The remaining budget is co-financed with grants, subsidies, equity or loans. (18)
- » Public or donor capital such as Results Based Financing in Tanzania or low-interest loan facility in Rwanda can reduce mini-grid capital cost and be leveraged to attract private capital. (31,34)
- » The continuous improvement of mini-grid cost structure presents an opportunity for financiers. The EEP Africa portfolio found that per connection cost of a mini-grid can be as low as EUR 200-300 (USD 230 to USD 350) with scale and simplified regulatory process. (31)

**Based on the experience of the portfolio, EEP Africa makes key recommendations to stakeholders:**

- » Governments: Mini-grids, as a key solution to achieve universal energy access, have to be integrated into national rural electrification plans, including tariff mechanisms and subsidy schemes.
- » Investors: Public and donor capital is a low-cost leverage to mobilize private resources.
- » Mini-grid developers: The most successful mini-grid developers focus on anchor clients. Demand load profile management is key to mini-grid financial sustainability.

### Share the Message

**Infrastructure financing and regulatory environments are the make-or-break contributors to mini-grid bankability.**

- » Governments play a key role. Including mini-grids as part of national electrification plans can be the least-cost solution to achieve universal energy access.
- » Clear permitting and licensing processes reduce cost for mini-grids developers.
- » Public and donor capital such as results based financing and low-interest loan facilities can mobilize private resource to spur mini-grid development.

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#### Sources:

1. EEP Africa, Opportunities and challenges in the mini-grid sector in Africa - Lessons learned from the EEP portfolio. Pretoria, 2018  
For more information on the report contact EEP at [info@eepafrica.org](mailto:info@eepafrica.org) or visit <https://eepafrica.org>