

Promotion of Mini-Grids for Rural Electrification (Pro Mini-Grids)

Improving framework conditions for scaling up private sector investment in renewable energy mini-grid electricity distribution

Challenges

Uganda is endowed with great renewable energy potential, able to generate power from solar resources, hydro resources, biomass and wind. However, only about 50 per cent of the country's population has access to any kind of electricity, of which 24 per cent has Tier 1 access (electricity supply for four hours per day). Outside of the cities, electrification drops to just 38 per cent where 70 per cent of the population lives. This low electrification rate is a major barrier for economic development and poverty reduction. Mini-grids provide a solution here since they can supply reliable and grid-like electricity in villages where grid extension is not financially viable.

The Ministry of Energy and Mineral Development (MEMD) seeks to promote private investment for mini-grids in Uganda. However, the policy and regulatory framework for mini-grids still needs to be developed to enable mini-grid projects to reach the necessary scale. As of 2015, only around 10 mini-grids were registered in Uganda.

Solution approach

The Promotion of Mini-Grids for Rural Electrification project's activities are part of the broader energy programme in Uganda. They are implemented in partnership with MEMD, the Rural Electrification Agency (REA) and the Electricity Regulatory Authority (ERA).

The approach operates on four levels:

1. **Policy and Steering:** Strengthening public actors in the field of electrification planning, formulation of policies and regulations, and promoting sustainable business models.



Project name	The Promotion of Mini-Grids for Rural Electrification (Pro Mini-Grids)
Contracting bodies	The BMZ's German Climate Technology Initiative (DKTI) European Union (EU)
Implementing organisation	Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH
Project area	Uganda
Political lead executing agency	Ministry of Energy and Mineral Development (MEMD)
Running time	2016 to 2021
Financial volume	€9,800,000

2. **Regulatory Instruments:** Developing instruments and mechanisms such as a reverse auction tender model for bundled projects hosted by the Government, that promote private sector engagement and provide investment security through Government buy-in.
3. **Technology and Design:** Building private sector capacities for planning, installation and operation of mini-grids. The project is also supporting Technical and Vocational Education and Training (TVET) for solar and mini-grid technicians together with Cologne Chamber



Photo left: Solar trainees during a practical session at the Renewable Energy Training Centre based at Nakawa Vocational Training Institute. © GIZ PREEEP

Photo right: A public hearing session in an area where one of the 40 solar mini grids is set to be installed. © GIZ PREEEP

Photo bottom left: Placement of low voltage distribution line works in preparation for the setting up of 40 solar mini grids in Northern and Southern Uganda under the Pro Mini-Grids project. © GIZ PREEEP

Photo bottom right: A demonstration of what the villages will look like once the solar mini-grids have been set up. © GIZ PREEEP



of Skilled Crafts and Small businesses (HWK) and Nakawa Vocational Training Institute (NVTI).

- Productive Use:** Providing trainings and access to finance for small and medium enterprises, smallholder farmers, and households, ensuring electricity is used to drive economic development and making the mini-grid business model sustainable.

Impact in numbers ...

- 2 developers to be selected to set-up mini-grids
- 40 solar mini-grids to be set up; 25 in Northern and 15 in Southern Uganda.
- 20,000 people to get electricity access
- 120 SMEs to foster economic development because of electricity access
- 250 solar technicians have been trained
- 1 solar and mini-grid training curriculum has been developed and certified
- 1 Renewable Energy Training Centre (RETC) for solar and mini-grid technicians has been set up

The developed tender process has provided a contractual framework for government-initiated projects to establish legal agreements such as the Implementation Agreements, Lease Agreements and Subsidy Agreements with private mini grid developers.

Elizabeth Kaijuka Okwenje, a Senior Renewable Energy Officer at REA says, "The tender process will pave the way for mini-grids at a large scale in Uganda by awarding concessions and licenses to private developers to develop multiple clusters of mini-grids in off-grid areas through Public-Private Partnerships (PPPs)."

"It is important to have private investment in mini-grid projects through PPPs because private developers invest their own capital to build, own and operate the mini-grids and therefore have a high stake and incentive to ensure their profitability and would hopefully provide a more efficient and reliable service to their customers," adds Elizabeth.

Because of the tender process, the project is in final stages of contracting two developers to set up mini-grids in 40 villages in Northern (Lamwo district) and Southern (Rakai and Isingiro district) Uganda. This is in line with the Pro Mini-Grid goal of improving framework conditions for scaling up private sector investment in renewable energy mini-grid electricity distribution.

Once installed, the mini grids will provide electricity access to at least 20,000 people and 120 SMEs to foster economic development which will eventually lead to poverty reduction and improve quality of life.

For sustainability, operation and maintenance of the mini-grids will be handled by the developers even after the project closure.

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