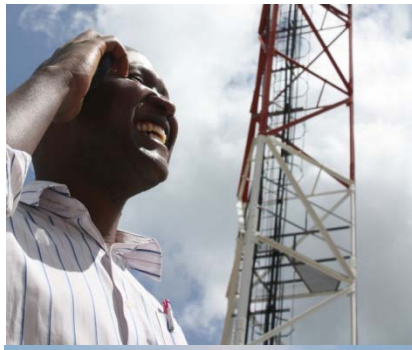
Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

Mobile towers for rural electrification

GSMA MECS African Regional Working Group
Kampala, 30.05.2013

Jasmin Fraatz





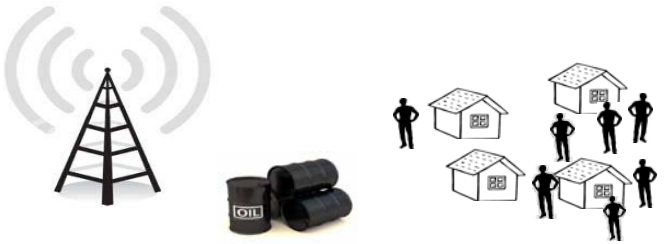


Agenda

- Project presentation – the business case
- Current status and next steps
- Rural electrification – the case of Kabunyata
- Open questions

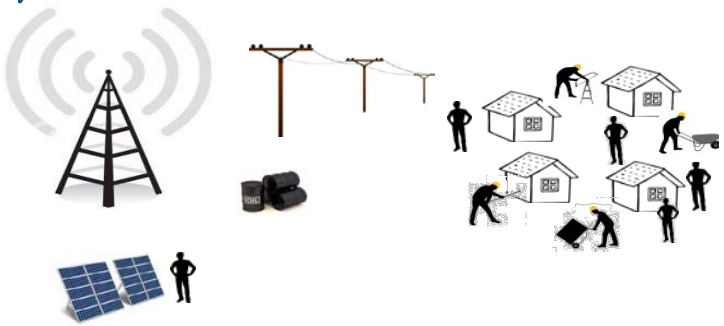
The project: Mobile towers as beacons for rural electrification

Before…..



- Mobile towers are run by diesel
- Rural communities have no access to electricity
- High environmental burden

….After



- Project developer installs solar container and will act as energy services provider for both tower and private households
- Solar substitutes diesel, energy costs sink significantly
- Establishment of small enterprises
- Training in operation and maintenance leads to the creation of job opportunities

Project partners in Uganda

Manufacturer/ operator

- Provider of solar hybrid solution to mobile towers and rural electrification
- Owner and operator of the electricity solution and responsible for service and maintenance
- Contracting and payment solution for provided energy

MNO

- Secure principal customer of solar power according, contractual negotiations are ongoing
- Provider of mobile money payment solution for rural electrification

Technical expertise

- Support at legal and administrative issues
- Support at capacity development for solar technicians
- Support at village electrification: awareness raising, prepaid metering payment solution (mobile money)
- Project management and financial contribution to the pilot project

High benefits for all participants

Solar company

- Opening up of new market segments
- Risk mitigation through secure consumer of anchor load
- High up-scaling potential in the region

Mobile network operator

- Cost savings of > 40%
- Opening up of new clients in rural areas/ customer retention through new service (electricity through „mobile money“)
- Social responsibility

giz

- Establishment as competent partner for the private sector
- Contribution to reach project goals: access to electricity for rural population

Development impact in Uganda:

- Electricity supply to > 50,000 people in rural areas (in roll-out)
- Improvement of production capacities of rural entreprises
- Capacity building and employment opportunities for >50 solar technicians/ year
- Reduction of CO2 emissions through fuel switch from diesel to solar PV

Overview of activities

	Baseline	Applying for Permit from ERA	Electrifying mobile towers	Electrifying village	Preparing Roll-out
Activities	• Electricity demand structure for rural electrification and mobile towers (energy audits)	• Certificate of exemption • Conduction of feasibility study including site evaluation, business model, operating model, technical feasibility	• Start of operations in selected pilot regions • Continuous monitoring and steering of energy supply and demand • Capacity development / training of technical personnel	• Setting up grid for rural electrification in cooperation with REA • Introduction of prepaid meters in combination with mobile money • Awareness raising of rural population	• Identification of market potentials • Providing financing solutions for operators for further expansions • Roll-out
Timing	✓	ongoing	✓	✓	As from 06/2013

Status update

- First mobile tower running faultlessly on solar energy (since October 2012) – installed capacity 10kWp
- Demand analysis for village electrification carried out (Nov 2012)
- Mini-grid installed (May 2013)
- Electrification of Kabunyata village – installed capacity 20kWp (May 2013)



Solar installation for Kabunyata village

Pilot site at mobile tower "Nakasongola"





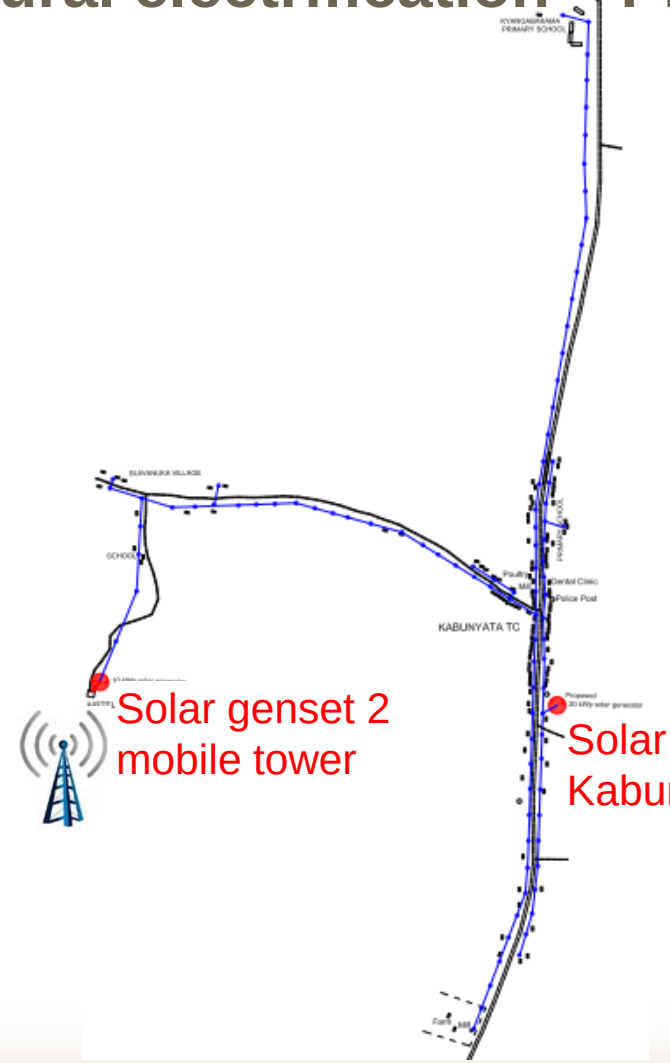
Energy container and installation

Mini-grid for rural electrification – Pilot Kabunyata









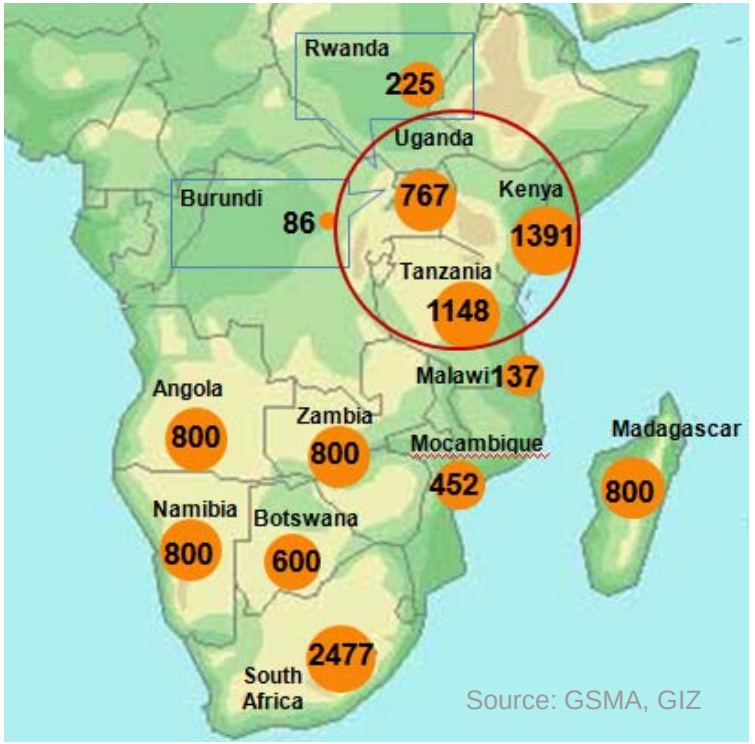
- 5.5km transmission lines
- 100 masts
- End-consumers (approx):
  - 100 households
  - 5 social institutions
  - 20 SMEs

powerline
pole
house

Next steps

- ✓ Assessment of market potential
- ✓ Finance and business model
- • Roll-out of project to other off-grid sites and rural settlements in Uganda is planned
- • Roll-out of project across Sub-Sahara Africa is desired

Off-grid mobile towers in Sub-Sahara Africa



In brief…

- Decentralised off-grid solutions based on RE source that are commercially viable are way forward for sustainable development
- Rural electrification through private sector involvement
- Market potential is high > more than 150,000 off-grid mobile towers, 3,300 mobile masts of which are in East Africa alone
- OPEX model is the preferred solution from private sector
- “Green towers” = topic with high visibility world wide and showcased in Uganda

Thank you for your attention

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