EnDev's RBF Facility for mini-grids: Experience from Kenya and Rwanda

EnDev's RBF Facility for mini-grids – Kenya Experiences

Mini-Grids Partnership Meeting - Accra, Ghana

Jackson Mutonga – 27.06.2019

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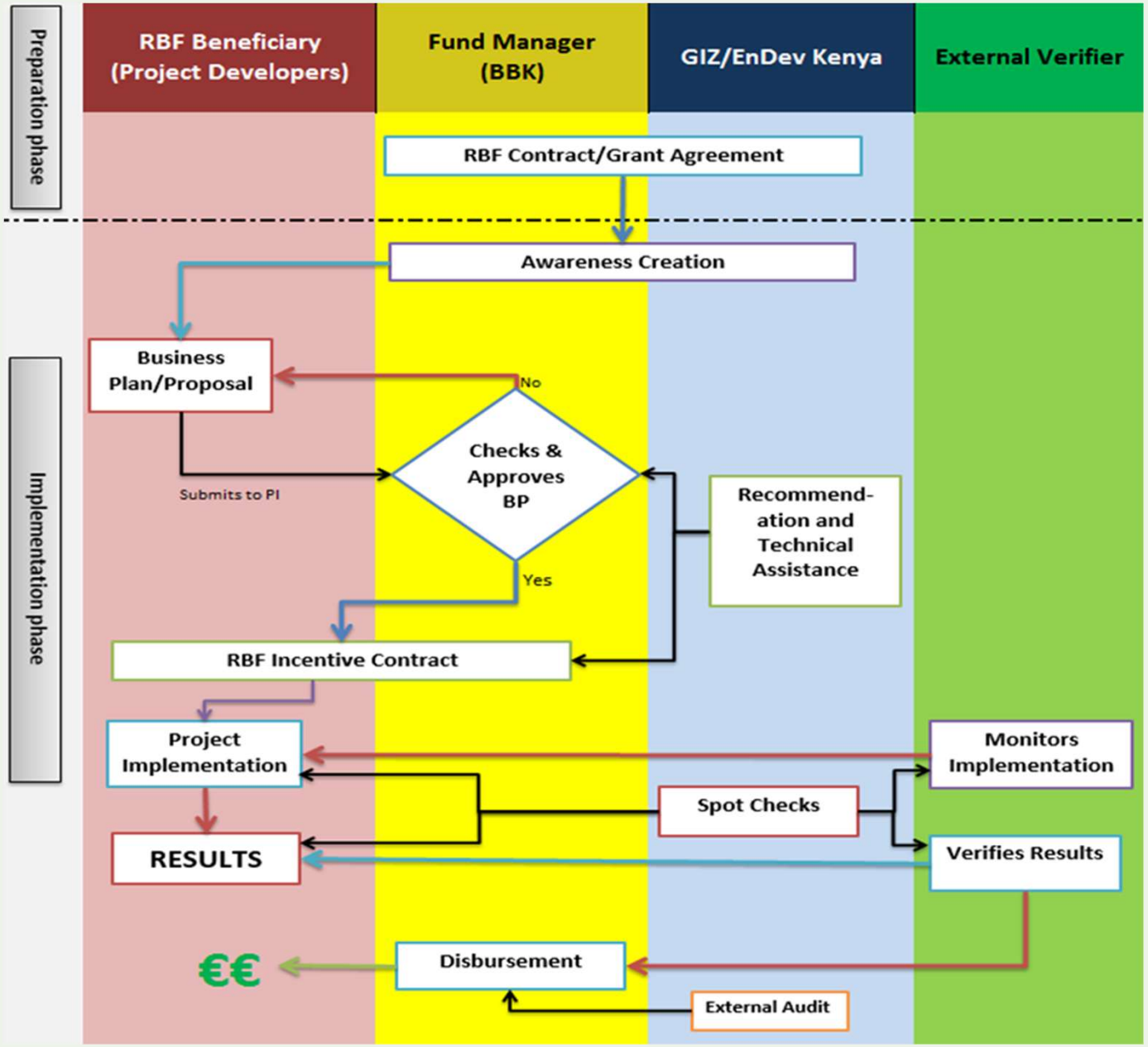
Mini-Grids Results-Based- Financing (RBF) Facility Setup

Project	Technology	Volume (EUR)	Implemented by	Duration
Market creation for private sector owned and operated mini-grids	Solar PV -hybrid mini-grids	2.1M (1.55M as incentives to RBF-PDs)	GIZ/EnDev Kenya	July 2014 – Dec 2019

RBF Mini-Grids Approach in Kenya

- **Objective:** Market creation for private sector owned and operated mini-grids
- **Country Alignment:** contribute to affordable, clean and sustainable power supply in off-grid areas in line with Kenya‘s target of universal electricity access by 2022 (KNES 2018).
- **Focus:** off-grid areas (Marsabit & Turkana Counties)
- **Business Model:** Pure ESCO
- **Partner institutions:** Ministry of Energy (MoE), Energy and Petroleum Regulatory Authority (EPRA), County Governments and the Private Sector.

Implementation Structure



Incentive Structure

1. Power plant and distribution system commissioning incentive (premium paid on CAPEX) – *30% of total incentives*

2. Connections made (premium paid per household connected and maintained for at least 3 months) – *70% of total incentives*

3. Energy production incentive (premium paid per kWh supplied over a certain period of time) – *for the first 2 mini-grid projects*

➢ Incentives capped at 50% of project CAPEX; except for Kalobeyei Refugee Settlement and Host Community town MGs - @82% subsidy in order to achieve national utility tariff rates.

Implementation Process and Progress

Selection of RBF implementer

Call for EOIs from interested potential RBF beneficiaries

Call for Proposals and selection of RBF beneficiaries

Implementation of interventions and delivery of results by RBF beneficiaries

Verification of results and disbursement of incentives

Continous monitoring and periodic audit by GIZ

Selected Implementer:

BARCLAYS

- 4 private companies selected (4 rounds of CfPs) to develop 14 sites in Turkana & Marsabit
  - Nirav Agencies – 6
  - Strauss Energy – 3
  - Renewvia Energy Kenya Ltd – 4
  - SESMA Microgrids Kenya Ltd –1

- 2 sites commissioned after 2 years of signing RBFIC!
- 8 under construction
- 3 under permitting and procurement
- 1 under controversy from another developer

- Disbursement of funds by BBK
- IVA and verification tools in place

EXPECTED OUTCOMES:

- 14 MGs of total 464 kWp.
- 1,400 Connections (inc. 21 institutions) ~ 7,000 direct beneficiaries.
- 140 jobs created (inc. 50 women).

Lessons Learnt

- TA is needed for RBF implementation – RBF Mini-grids was embedded in an established GIZ ProSolar (TA) project
  - substantial additional TA to FI and PDs (nascent and local)
  - Absorbing some soft costs – e.g. (pre)feasibility studies, government clearances/permits, community engagement/MoUs, etc
  - Stakeholder engagement (especially government entities)
- The project employed consultative and educational engagement approach
- Internal processes of the FI (division of tasks, bureaucratic structures, change of staff, buyout) and novelty of RBF (for Barclays, the market and GIZ) are the main reasons for delays in early stages
  - FI should not be responsible for technical implementation

Lessons Learnt

- Incorporate built-in flexibility in the RBFICs to accommodate
  - mini-grid market and site specific dynamics which call for adaptation of the RBF contracts especially on incentive structure/levels, delivery timelines, system capacity etc
  - key stakeholder expectations e.g. community CSR projects
  - Strategic partnerships for additional grants to lower tariffs
- Design comprehensive contracts for PDs to secure project finance. Include (if possible):
  - approved technical specifications of components
  - Financial performance data of operational mini-grids
  - Off-taker risk guarantee/insurance

Thank you for your attention.

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Energising Development (EnDev)
Village Grid RBF Rwanda

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Approach

Technology

- Village grids with own generation (hydro or solar/solar-diesel)
  - 5-50 kW generation with at least 40 customers
  - 51-100 kW generation (require license)
- Village grids with distribution only, purchasing power from
  - an existing isolated power plant (covered by license exemption < 50kW)
  - EUCL as a Small Power Distributors (SPD)

Technical requirements on safety and service quality

- Reliability of power supply within the village grid
- Quality of electricity to protect electrical appliances (electronic load control)
- Safety of the customers and staff (proper earthing, design, sizing & installation)
- EARP grid standard construction guidelines applied for the distribution network

EnDev Rwanda provides Guidelines (solar, hydro and distribution) for planning and design, as well as a detailed checklist used for project commissioning.

Approach

Financing

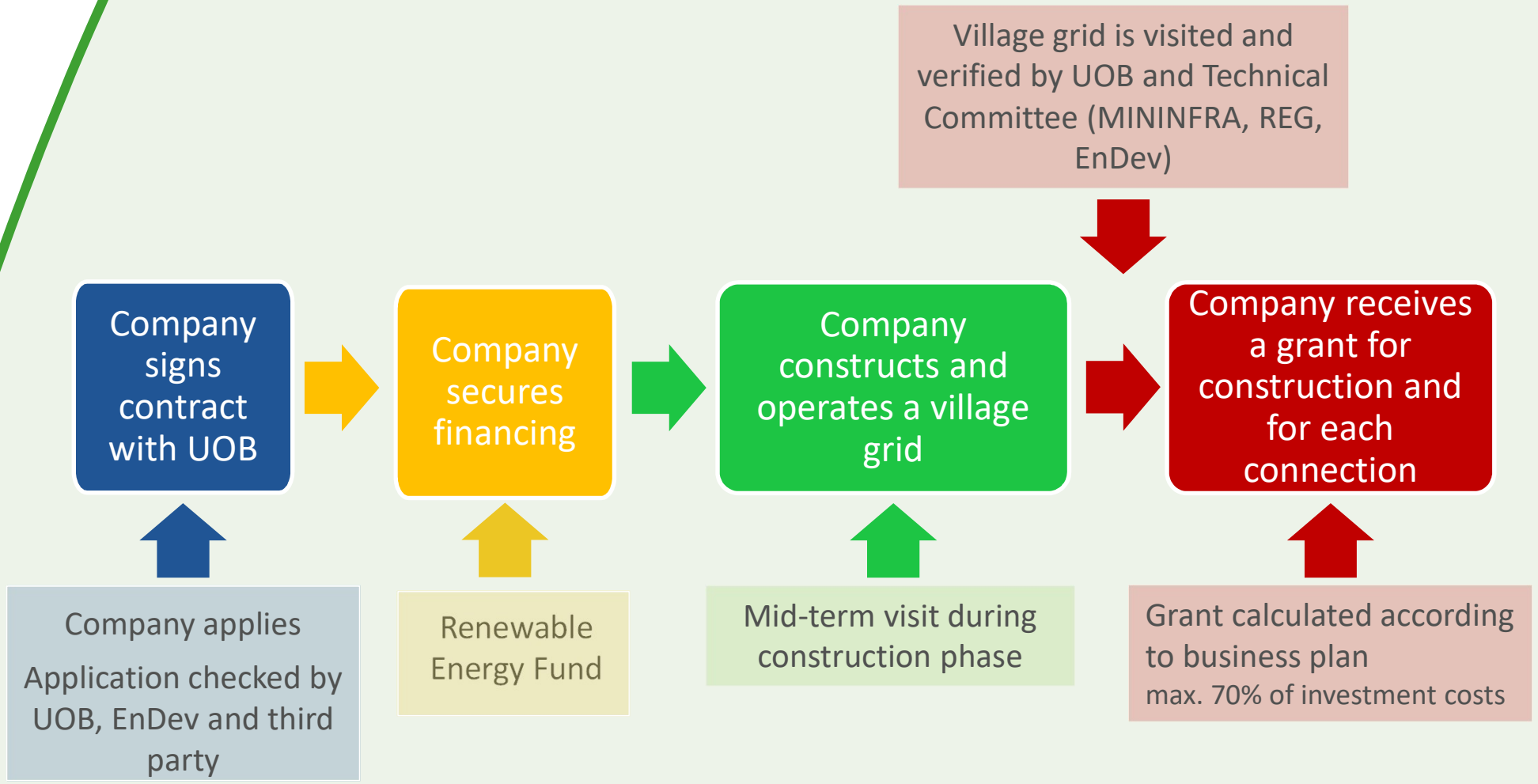
- Up to EUR 1.07 million in incentives
- A single company can receive max. EUR 250,000 (roughly 25% of total budget).
- Up to 70% of CAPEX investment

Results-based

- Subsidy is paid out after successful commissioning and in quarterly installments over the first year of operation

Partners

- Ministry of Infrastructure (MININFRA), Energy Development Corporation Limited (EDCL), Energy 4 Impact (E4I), Rwanda Utilities Regulatory Authority (RURA)


Village grid is visited and verified by UOB and Technical Committee (MININFRA, REG, EnDev)
Company signs contract with UOB
Company secures financing
Company constructs and operates a village grid
Company receives a grant for construction and for each connection
Company applies
Application checked by UOB, EnDev and third party
Renewable Energy Fund
Mid-term visit during construction phase
Grant calculated according to business plan
max. 70% of investment costs

Results achieved so far

Company	Technology	Capacity (kW)	Customers	Status
MESHPOWER	Solar DC	22 (1kW nano grids)	847 (594 HH, 253 PU)	Commissioned and operating
ECOS	Hydro	11	267 (224 HH, 36 PU, 7 SI)	Commissioned and operating
Absolute Energy	Solar AC	50	505 (448 HH, 57 PU)	Commissioned and operating
RENERG	Solar AC	35	120	Contracted
MESHPOWER extension	Solar DC	Extension to 75 1kW grids	2000	Contracted

Thank you for your attention

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