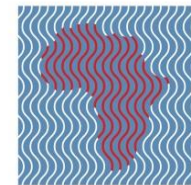




»»» Storage and Integration of
Renewables in the Grid in
Mozambique
GET FiT Mozambique
Maputo, 25 May 2022

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**GET FIT
MOZAMBIQUE**



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At a Glance



- GET FiT provides support mechanism for **unlocking private investments in RE projects** by (i) reducing risks, (ii) improving attractiveness of investment environment, (iii) increasing institutional capacity, and (iv) building track record of successfully implemented projects
- Building on experience from Uganda and Zambia  
- Goal: 130 MW installed dispatchable RE: Solar PV plus storage + small HPPs, each project with 4 to 15 MW
- Good momentum: GoM is committed to universal access to energy by 2030, developing RE and cooperating with private sector; important sectoral reforms

- May 2022: Implementation starts
- Mid-2023: Tender start for first round of 30 MW solar PV plus storage with EUR 25 million grant from German government

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Challenges and Solutions for Leveraging Private Investment in RE



Challenges

- Removing legal & regulatory hurdles for private investment
- Technical concerns for grid integration of fluctuating RE
- Mitigating political & commercial risks, e.g. off-taker risk
- Incentives for private sector as RE IPP track record is weak

GET FiT Solutions

- ▶ TA for bankable contracts, procurement, compliance with E&S standards
- ▶ Apply PV + Battery technology to address grid integration concerns
- ▶ ATI membership (Regional Liquidity Support Facility/RLSF)
- ▶ Top-up for cost-reflective tariffs to make IPP projects viable, financing grid connection



Two-stage reverse public auction, with most favourable bid to be accepted which fulfils technical & financial criteria

- Stage 1: IPPs have to meet prequalification criteria, demonstrate track record of developing & completing RE projects
- Stage 2: IPPs submit business plans for project development along with associated tariffs

Potential criteria for IPP projects could be:

- Similar experiences during the last 5 years (e.g. at least 4 MW installed capacity in RE)
 - Experience in Sub-Saharan Africa
 - Experience in recycling of batteries
 - Compliance with IFC Performance Standards, Mozambican E&S Standards, KfW's legal & financial due diligence requirements
- *Additional Criteria to be decided by Steering Committee*



→ **Steering Committee** (jointly used with Proler)

- Responsible for defining framework for selection process
- Voting participants: MIREME (Chair), MEF, ARENE, EDM
- Members with observer status: FUNAE, GET FiT Implementation Consultant, PROLER / AFD, KfW, other potential co-financiers

→ **Evaluation Committee**

- Responsible for organising the selection process (technical & financial evaluation)
- Co-chaired by ARENE & KfW
- Other voting participants: 3 independent experts (procured & financed by the Programme)

→ **GET FiT Programme Team**

- Responsible for the day-to-day management of the Programme
- Members: Project Manager of MIREME, Procurement Manager of ARENE, Implementation Consultant

Green People's Energy for Africa: Mozambique

At a glance



Programme Design

- Off-grid component of GET FiT: same mechanism & governance structure
- 3 MW mini-grids
- 10-16 projects

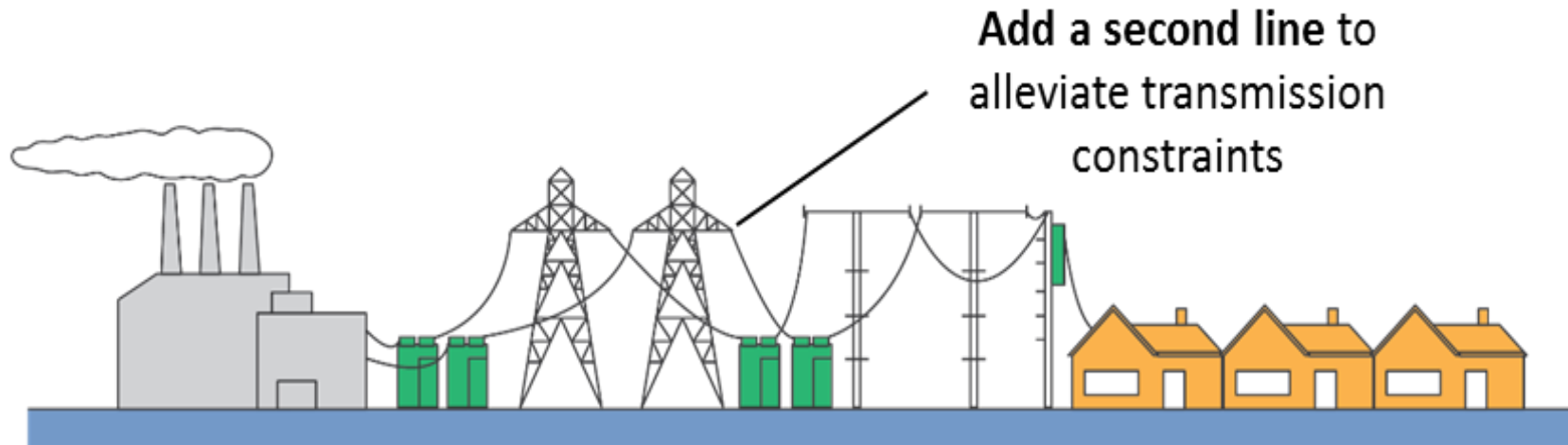
Financing

- EUR 23.5 million grant by German Government
- Plus IPP sourced Equity and Loan

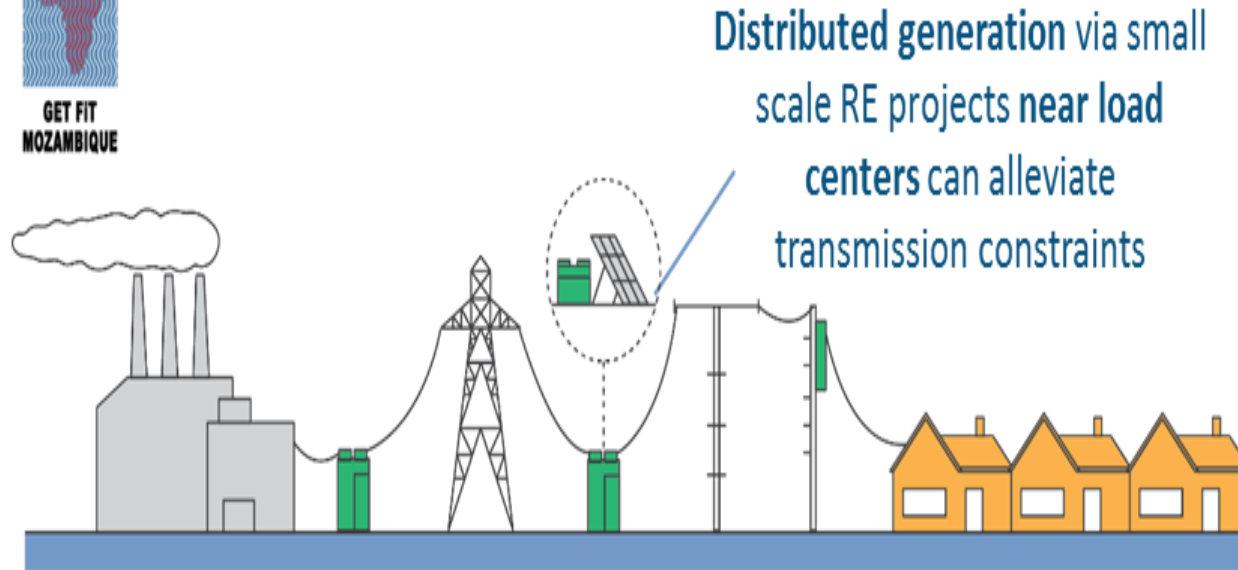
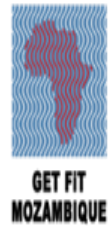
Status

- Identification of potential sites in cooperation with FUNAE
- Support by a satellite data analyst
- Implementation planned for Q3 2022

Traditional strategy to address transmission constraints



GET FiT alternative option – localized and targeted RE



- Divided into projects of **4-15 MW each**
- Constrained load centers will be identified by EDM
- Required project size for generation capacity and battery

e.g. Procuring 15MW PV generation + 10MW/40MWh battery injecting power to “X” demand center.

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Impact on Power System



Round 1: Solar + Storage 30MW

Projects will target highest priority and constraints in the network using PV solar coupled with storage.



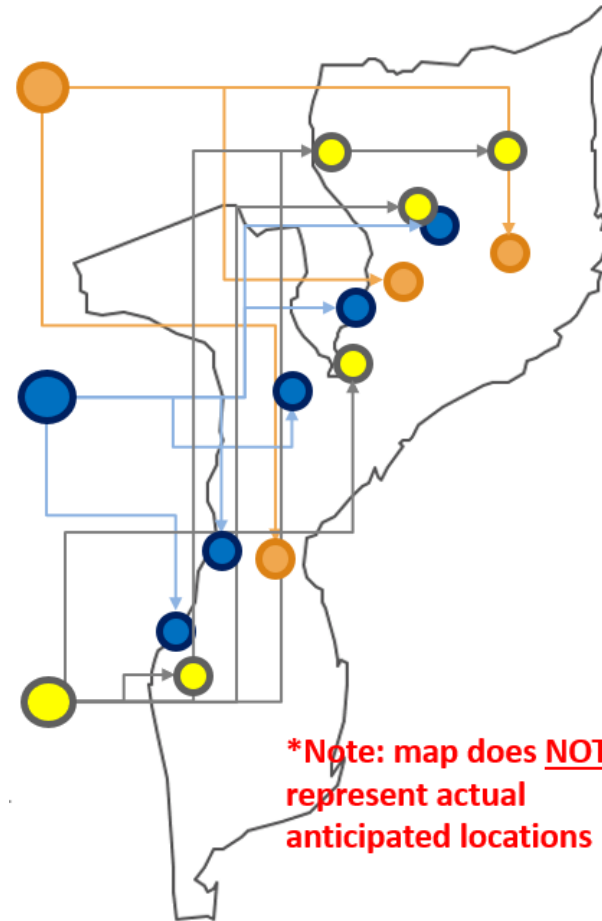
Round 2: Small Hydro 30-60MW

Small hydro projects will be launched soon, with procurement and development process expected to take longer than the solar + storage round 1.



Round 3: Second Wave Solar + Storage 30-60MW

After financial close of Round 1 and 2, reassess needs for further solar plus storage or other RE investments and procurement models.



***Note: map does NOT represent actual anticipated locations**

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Challenges in Using Storage Technology



- As GET FiT supports privately financed projects, responsibility for battery disposal remains with the owner: the IPP.
- However, the challenge is bigger: The technology is rather new for Mozambique. Also public sector, especially the utility EDM, are need of training and capacity building regarding
 - Dispatch and load management for storage
 - Managing, integrating and optimizing distributed generation into the grid from solar plus storage
 - Battery services and uses
 - Battery disposal
 - Reactive power
 - Grid congestion risks.