Financing the Clean Energy Transition in Africa - Gaps & Opportunities

8 Feb 2023 | 14:00 CET | Virtual

PWCET Series
Financing the Clean Energy Transition in Africa – Gaps & Opportunities

Opening and welcome remarks – Mr. David Lecoque, CEO, ARE – 5 Mins

Moderator – Ms. Gabriele Pammesberger, Access to Finance Specialist, ARE

Keynote speech – Mrs. Bärbel Höhn, Special Representative for Energy in Africa, BMZ – 10 Mins

Speaker Interventions – 8 Mins each
Mr. Daniel Kitwa, Deputy Director Energy Access Finance, GreenMax
Mr. Razvan Sandru, Project Manager, GBE Benin
Ms. Gracia Munganga, COO, SustainSolar
Mr. Kjetil Roine, CEO, Differ Community Power

Moderated discussion and audience Q&A – 40 Mins

Closing remarks – Ms. Dorothea Otremba, Senior Advisor, GIZ – 3 Mins
The Alliance for Rural Electrification (ARE) is the global association for the decentralised renewable energy (DRE) industry, catalysing private sector driven markets for sustainable electricity services, creating jobs and powering equitable green economies.

#1 Global decentralised renewable energy association

200+ Members

55 Countries

3 Continents

For more details, see ARE Matchmaking Platform
ARE Members Regional Focus & Expertise

ARE Members Technologies

Bioenergy  Hydro  Wind  Power Components  Energy Storage  PV

ARE Members Systems

Standalone  Mini-grid
ARE Member Services

- Market Intelligence & Business Development
- Policy & Advocacy
- Communications & Marketing
The GBE – ARE Cooperation’s initiative ‘Paving the way for Clean Energy Transition with Decentralised Renewable Energy (PWCET) series’ is commissioned to promote public discourse on the subject of the ‘clean energy transition’ with DRE.

Today’s session will focus on the gaps and opportunities when it comes to financing the clean energy transition in Africa followed by the moderated discussion and Q&A.
Moderator

Ms. Gabriele Pammesberger
Access to Finance Specialist,
ARE
Keynote speech

Mrs. Bärbel Höhn
Special Representative for Energy in Africa, BMZ
Financing the clean energy transition in Africa – Gaps and Opportunities

8 February 2023
CEI Africa
Overview

- Initiative by BMZ (& Bärbel Höhn) complementary to successful GIZ activities
- Established by KfW on behalf of BMZ in 11/2021
- Main office in Amsterdam
- African offices in Nairobi, Lagos and Lomé
- Daily management by Foundation Management Consortium selected by international public bidding
- Aim of the Foundation: fighting energy poverty in Sub-Saharan Africa by closing the financing gap combining loans, equity and grants, offering a one-stop-shop in 2 promotional windows:
  - Smart Outcomes (RBF) Window € 21 mln
    - to finance mini-grids through Result Based Financing (RBF) on a grant basis
  - Crowdlending window: € 28 million
    - Provide loans and equity to
      - Green Mini grids
      - Small off-grid companies in Africa
- Donors
  - CEI Africa Foundation € 54 m
    - Crowdlending Window € 28 m
    - Result Based Financing Window € 21 m
      - SOF Component € 5 m (+ € 13.5 tbc)
    - Green Mini-grids: Developers/ AssetCos
      - Standalone off-grid companies - PAYGo/ Distributors/ PUE
A. Target sectors and countries

Off Grid Energy companies:
- Sectors: SHS, off-grid C&I, Productive Use of Energy (e.g. solar irrigation).
- Focus countries: Benin, Ethiopia, Ghana, Ivory Coast, Mozambique, Namibia, Senegal, Uganda, Zambia

Green Mini Grids (GMG):
- Type of finance: Corporate lending and project finance
- Focus countries (first round): Sierra Leone, Benin, Mali, Madagascar, Kenya, DRC (to align with RBF Window)

B. Products

Co-financing with with Crowdlenders:
- Senior debt (20-30%)
- Sub-debt (30-50%)
- Equity/Quasi-Equity (20-30%)
- Guarantees (e.g. FX) (0-20%)

Technical Assistance (TA) (up to EUR 1m):
Operational strengthening of Crowdlenders and their investees

C. Process

- Process 1: Onboard Crowdlenders: assess potential for reliance on investment process
- Process 2: Co-financing borrowers with Crowdlenders through “Lean Lending” or direct investments

Objective
Secure loans and equity to Green Mini-Grids and Off-Grid Energy Companies in Africa by strengthening Crowdlenders and their capacity to invest, mobilizing real private (retail) money

Summary overview:
Strategy Crowdlending Window
Crowdlending window

Cooperation with crowdlenders

Supporting the off-grid energy sector together with crowdlenders, catalyzing private capital into the sector
RBF Window
Output based

Payments of result based grants are based on number of connections
Summary overview:

Strategy RBF Window

Objective
To improve energy access to Africa’s most vulnerable populations. CEI will accelerate the growth of renewable electricity provision via Green Mini Grids through Results Based Financing (grants).

A. Target sectors and countries
Green Mini Grids (GMG):
❖ Sectors: Corporate and project finance.
❖ Focus countries (first round): (1) Kenya (2) DRC (3) Sierra Leone (4) Benin (5) Madagascar (6) Mali

B. Products
Result based financing payments:
❖ Grants

Technical Assistance (TA) (up to EUR 1m):
Operational strengthening of Crowd lenders and their investees

C. Process
❖ Process 1: Pre-qualification of GMG developers
❖ Process 2: Grant application for specific Green Mini Grid sites

D. Odyssey IT Platform
❖ Grant payments are done based on number of connections (claims made by developers)
❖ GreenMax, through the IT Platform Odyssey conducts remote verification of all submitted connection claims.
❖ Grantees agree in the Grant Agreement to provide quarterly project mini-grid data to CEI Africa for 3 years after commissioning of project in order to support measurement and evaluation on the overall and country-specific mini-grid sector and market development.
Smart Outcomes Based
Adding outcomes based payments for PUE

SIINC Methodology:
- Reward impact-oriented private enterprises for the specific positive impacts they generate.
- Financial incentives based on PUE deployment & agreed impact.
- Impact verification
- Indicators include no. of people reached with PUE equipment, first time access to PUE Technology, Women’s empowerment
Looking ahead

- CEI Africa is a regional initiative is based on exchange of ideas and collaboration, especially with BMZ, GIZ and Swiss Development Cooperation => welcome to broaden the cooperation to others

- Close cooperation important to CEI Africa & welcome, e.g. As a regional program CEI Africa focuses on private off-grid energy sector, preconditions for CEI Africa’s success are good framework conditions, e.g. tariffs, regulation, licencing of GMGs, electrification strategy.

- CEI Africa is young, still in its first phase of implementation: exchange of lessons learnt and collaboration in implementing the promotional instruments needed and welcome.
Contact us

Triple Jump
Sascha Huijsman
Project Manager CEI Africa
Shuijsman@Triplejump.eu

GreenMax
Daniel Kitwa
Manager RBF Window
dkitwa@greenmaxcap.com

Persistent
Thomas Gallas
Manager
Crowdlending Window
thomas@persistent.energy
Mr. Razvan Sandru
Project Manager,
GBE Benin
Access to finance at GBE Benin

Razvan SANDRU
Project Manager, GBE Benin

With the support of the technical experts:
- Eva LEE, Productive Use of Energy Expert
- Narcisse KINDOHOUNDE, Deputy Project Manager
- Luca MANGO, Private Sector Expert
Green People’s Energy (Grüne Bürgerenergie – GBE) is a regional programme of the German cooperation in 9 African countries, including Benin.

GBE focusses on technical assistance for decentralised renewable energy.

Focus 1: Productive use of energy
Focus 2: Electrification of social infrastructure
Focus 3: Technical and Vocational Education and Training (TVET)
Focus 4: Investments facilitation in decentralised renewable energy
Focus 5: Electrification of villages through mini-grids
Focus 6: Improving the regulatory framework
Focus 7: Small Project Fund for not-for-profit organisations
Access to finance in decentralised renewable energy

On a **company** level

Source: Dall.E “digital art of a black woman-owned solar company receiving funding from a female investor”

On a **end-customer** level

Source: Dall.E “abstract pencil and watercolor art of an African farmer receiving credit from a micro-finance institution”
Access to finance – on a company level

What did GBE do?

- Between June 2021 and July 2022
- Financed an 80-hours individual mentoring programme for 10 local solar companies on improving administration, management, marketing, business plans and preparing submissions for loans
- Competition of these companies pitching their projects to local financiers
- Matchmaking between companies and (foreign) investors

Results

- Three companies got offered financing

Biggest challenges

- Investors are looking for the low-hanging fruits = lowest risk vs. highest potential. In real life = all foreign investors were looking at the same one local company
- Local banks are seeking considerable collateral that most companies cannot provide

Opportunities

- RBF verification as an independent-party certified track record

Wishlist

- DFI and others to reduce the risk for investors and (crowd) lenders funding companies. In exchange, companies participate in a strict support programme = accept higher risk in exchange for more transparency
Access to finance – on an end-customer level
Building an eco-system of actors

- Solar distributors market, sell and install PUE equipment to end-customers and manage after-sale service
- MFIs grant long-term loans to end-users, collect payments and manage guarantee
- Solar distributors market, sell and install PUE equipment to end-customers and manage after-sale service
- MFIs grant long-term loans to end-users, collect payments and manage guarantee

RBF for solar PUE appliance sales
Solar PUE products
Long-term credit
Technical assistance
RBF for solar PUE micro-loans
End-customers
MFI
Solar distributors
RBF for microfinance

RBF for solar PUE micro-loans
- Managed by CIDR Pamiga
- Covers overheads of market entry and various risks through fixed and loan-tied incentives

MFI
- Offers credits at better conditions
- Responsible for risk management and payment collection

Solar companies
- In charge of installation, maintenance and after-sale service
- Order equipment from solar companies and apply for loans with the MFI

End-users

Credit supply

Solar PUE appliance supply

08.02.2023
Access to Finance at GBE Benin
Risk and Challenges

01. Overhead related to market entry and new product/process development
In order to extend their credit lines to the solar customers, MFIs have to invest in financial product development, personnel training and internal capacity building, client recruitment, awareness raising, etc.

02. (Perceived) high default risk of solar end-users
The MFIs have little to no experience with financing solar installations. Perceived risk of the sector is high. According to solar companies, default rate is estimated at around 15%.

03. Strict collateral requirement
The MFIs often impose strict requirement on collaterals or other ways to secure their investment. It is, however, often difficult for solar PUE users to be able to meet these requirements.

04. Possibility to adopt PayGo to manage loans
Adoption of PayGo may be an opportunity for MFI to manage their loans digitally, at a lower cost and reducing default rates. However, MFIs in Benin are generally unfamiliar with such digital tools.
Incentive Structure

There are two types of incentive: one incentive to cover overhead linked to MFIs’ market entry and one the incentives to cover different types of risks and conditions.

- MFIs have to establish partnerships with solar distributors to be eligible
- Eligible loans have to have a maturity of more than 12 months
- The amount of loans should not be more than 150% of the cost of the PUE installation

<table>
<thead>
<tr>
<th>Incentive</th>
<th>Type</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Market entry (e.g., financial product development, agency trainings, etc)</td>
<td>Fixed result-based incentive</td>
<td>EUR 3 000</td>
</tr>
<tr>
<td>Default risk coverage</td>
<td>Loan-tied incentive</td>
<td>15% of the loan amount</td>
</tr>
<tr>
<td>Preferrential terms for collateral requirements</td>
<td>Loan-tied incentive</td>
<td>8% of the loan amount</td>
</tr>
<tr>
<td>Long-term loans of &gt; 24 months</td>
<td>Loan-tied incentive</td>
<td>5% of the loan amount</td>
</tr>
<tr>
<td>Adoption of PayGo</td>
<td>Loan-tied incentive</td>
<td>5% of the loan amount</td>
</tr>
</tbody>
</table>
Thank you!

Please reach out to us should you have any questions.

Razvan SANDRU
GBE Benin
Project Manager
razvan.sandru@giz.de

Eva LEE
Productive Use of
Energy Expert
chih-jung.lee@giz.de

Narcisse KINDOHOUNDE
GBE Benin
Deputy Project Manager
narcisse.kindohounde@giz.de

Luca MANGO
Private Sector Expert
luca.mango@giz.de
Speaker intervention (3/4)

Ms. Gracia Munganga
COO,
SustainSolar
Asset Finance: A catalyst for unlocking scale and speed of deployment for energy access
SustainSolar is a systems’ integrator providing modular turnkey, containerized off-grid solar and battery energy storage systems (BESS)

**SUSTAIN COMPACT™**
- 20 ft container
- Up to 28 kWp and 100 kWh
- mini-grids, or large off-grid and hybrid applications.

**SUSTAIN EXTENDED™**
- 2X 20 ft, or 40 ft container
- Up to 84 kWp and 310 kWh
- mini-grids, or large off-grid and hybrid applications

**SUSTAIN BOX™**
- Fully integrated PV-ready inverter and battery cabinet
- 10/12 kVA and up to 30 kWh
- ideal for small scale or remote applications
To date, SustainSolar has built and deployed 32 turnkey power systems across 7 countries

- The systems deployed vary in size i.e. up to 100 kWp PV and 230 kWh battery storage across South Africa, Malawi, Sudan, South Sudan, Uganda, DRC, and Lesotho.
- Applications: mini-grids, off-grid and grid tied back-up.
- SustainSolar has worked with mini-grid developers, NGOs and large companies.
- The largest MG system serves >300 connections.
There remains a significant funding gap required to achieve SDG 7 despite the $1.8 bn committed to date

- Capital investment of $128 billion needed for mini-grid rollout goals in sub-Saharan Africa, Asia, and island nations (SEforALL 2020)
- Requires equity, debt, grant, and in-kind government, etc. support

**Funding Sources**

- Mini-Grid Funders Group has committed $1.8bn globally ($1.4 bn to African countries) of largely public finance / foundation
- Private equity investors e.g. Gaia Impact Fund, All On
- Debt lenders e.g. SunFunder, Oikocredit, SIMA Funds
- In-kind infrastructure e.g. distribution grid by Umeme utility, etc.

**$1.8 bn Committed Funding to Mini-grids**

Source: Mini-Grid Funders Group
Strong effort to develop tailored funding instruments to support scale and speed of deployment required

Long-term (e.g., 7-10 years)
- Equity investment to mini-grid OpCo (e.g., Gaia Impact Fund) or mini-grid AssetCo SPV (e.g., CrossBoundary Energy Access)
- Project finance debt to mini-grid AssetCo SPV (e.g., InfraCo)

Short-term (e.g., 6-18 months)
- Construction finance debt to fund site development (e.g., Mirova SunFunder), unlocks RBF grants (see below)
- ‘Asset as finance’ model providing turnkey power system (~45% of MG capex) as debt instrument (e.g., SustainSolar Asset Finance), unlocks RBF grants (see below)

RBF Funders include:
- RBFs are instrumental and help the long-term financial outlook for mini-grid projects
- However, there remains a gap for up front financing i.e. short-term fundraising to kick-off deployment of mini-grid construction
SustainSolar’s Asset Finance has been piloted successfully with two RBF-backed clients, and currently securing sizable finance to scale across SSA

- Seed funding secured from Shareholders for pilot in 2021
- Finance linked to SustainSolar power systems and repaid from RBF milestone payments once reached
- Beneficiaries identified from our network in Lesotho and Uganda

- PAOP grantees, with relatively strict project delivery timelines
- **Client 1** (3 X containerised systems), and **Client 2** (5 X cabinet systems)
- Competitive pilot terms based on local commercial rates: 6-8 mos, 15-19% p.a.
- Asset finance was instrumental to successful and timely project completion

- Asset finance successfully shortlisted with international DFIs for asset finance ($6 million debt) and undergoing due diligence
- Additional construction finance facility identified from local DFIs to be tested with Rands based contracts

- Improve % p.a. target to **single-digit USD**
- Build visibility and relationships with RBF facilities as **agile funding partner** for shortlisted candidates where there is a gap
- Parallel conversations with developers and their investors to align SustainSolar asset finance with project needs
- Asset finance mechanics and processes currently being streamlined to improve efficiencies, risk management, and cost
Collaboration between supplier, client, RBF, funder, authorities is key to successfully unlocking benefits of supplier finance

• **Unrelated project delays happen**→ Funders should consider isolating Power System milestone from other deliverables. This will help lower project risk profile (and therefore cost of finance).

• Access to RBF due diligence documents would help save significant time for both the developer and SustainSolar, especially if funding is tied to distribution, permitting, etc.
  • Doing this ourselves adds heavy cost and time.

• **Asset finance risk(s):** country risk, FX currency, RBF milestone completion failure, stranded asset, unattractive construction finance interest rate, etc.

• First Loss facilities are only designed for banks. Offering this to niche asset-as-finance suppliers can speed mini-grid deployment.

• Efforts needed to broaden asset finance offerings to accommodate different client and market profiles.
Thank You
Speaker intervention (4/4)

Mr. Kjetil Roine
CEO,
Differ Community Power
Differ Community Power – The leading provider of reliable energy services to schools and health clinics

Presentation 8 February 2023
• **What to finance**
  1. Capex: Everything up until commissioning
  2. O&M: Ensuring proper and reliable operation of the energy systems

• **Who can finance**
  1. Those who give away money for free through grants: Donors, foundations++
  2. Those who wants there money back with an acceptable return -> commercial project finance
  3. Those who provide guarantees or other measures for risk-sharing

• **Who pays (in the end)**
  1. Those who give away money (Capex support and/or end-user support)
  2. The customer (e.g. end-user, Ministry of Health)
  3. Those who provide subsidies (e.g. the government)
A key premise for involving private sector is that companies have to earn money. So the challenge is not operations, but rather:

**Who is paying us?**

Donors, UN organisations, development organisations often pay for the CAPEX. But:

**Who pays for the OPEX?**

**Message 1:** There is no energy service without (having control on) operation

**Message 2:** Reliable operation is not a problem – as long as we get paid for it

**Message 3:** The fact that the end-user/customer is not able to pay for OPEX, scares ALL investors and the private sector
DCP develops projects and secures project financing

**Rhetoric question:** Would you put your own money into a project where you most likely would not get your money back?

**Challenge:** The cost of financing is very high!

**What we need to get it bankable:**
- Creditworthy customer/counterpart
- Guarantees for non-payment
- First-loss facility
- Results-Based Financing (helping the customer)
- Mitigation of FX-risk

**Message 1:** We cannot reach financial close before the project(s) are **bankable**

**Message 2:** If bankable, private sector (we) can operate on long-term contracts and provide energy services to the schools and health facilities (both public and private)
Adding financing in a lease-to-own/fee-for-service business model (similar to utility-scale)

Our value proposition: Lease-to-own model incl. project development, technology, O&M and financing

The size of the grant decides the monthly fees the customer is paying – higher grant, smaller monthly fee
An illustrative challenge – and solution – to turn green

Private sector costs

- Project dev
- Hardware & software
- Shipping
- VAT & Taxes
- Logistics
- Overhead
- Cost of financing

Project value

- Margin/RoI

Customer pays 100%

- Installation

Authority subsidies

Customer pays only a share of real electricity cost (no cost-reflective tariffs)

Grid electricity & diesel are highly subsidized

Support needed

RBF

Customer pays a proportion

How to make DRE more competitive

Price to customer solar solution

No ‘help’ to the customer

Cost of financing

Grid electricity benchmark cost

How to make DRE more competitive
More impact earlier

Investing in improving the African health sector

Contact

Kjetil Røine / CEO
Differ Community Power / Norway
kjetil.roine@differgroup.com
+47 95201355
www.differgroup.com
Moderated Panel Discussion

Financing the Clean Energy Transition in Africa – Gaps & Opportunities

Panellists

Moderator
Ms. Gabriele Pammesberger
Access to Finance Specialist, ARE

Mrs. Bärbel Höhn
Special Representative for Energy in Africa, BMZ

Mr. Daniel Kitwa
Deputy Director Energy Access Finance, GreenMax

Ms. Gracia Munganga
COO, SustainSolar

Mr. Kjetil Roine
CEO, Differ Community Power

Mr. Razvan Sandru
Project Manager, GBE Benin
Closing remarks

Mrs. Dorothea Otremba
Senior Advisor,
GIZ
Thank you and see you at
the next PWCET event