

A photograph of a traditional thatched-roof hut at night. The hut's interior is lit up, and a bright light source, possibly a solar lamp, is visible to the left. A faint rainbow is visible in the dark, purple-hued sky above the hut. The scene is set in a rural area with trees and vegetation in the background.

Energy and Development Beyond the Grid

RESULTS, LESSONS AND NEXT STEPS FOR
A BEYOND THE GRID APPROACH TO ENERGY ACCESS

Club-ER Annual Meeting
Cotonou | 05 Dec 2018

OVERVIEW

- ▶ About REEEP
- ▶ Beyond the Grid Fund Zambia | Background and Approach
- ▶ Beyond the Grid Fund Zambia | Results and Impact
- ▶ Beyond the Grid Fund Zambia | Data and Analytics
- ▶ Beyond the Grid Fund Africa

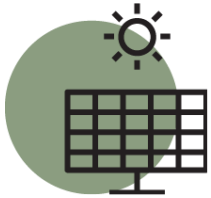
ABOUT REEEP

A photograph of a concrete-lined water channel flowing through a rocky, forested landscape. The channel is built into a hillside, with large boulders scattered along its path. The surrounding area is lush with green vegetation and trees. In the background, a suspension bridge spans a valley between two hills, with a few people visible on it. The sky is clear and blue.

RENEWABLE ENERGY & ENERGY EFFICIENCY PARTNERSHIP (REEEP)

- ▶ International multilateral partnership based in Vienna, AT
- ▶ Mandate: Accelerate market readiness for renewable energy and energy efficient solutions in low income and emerging countries
 - ▶ Founded 2002 at Johannesburg Sustainability Summit
 - ▶ Managed funds for more than 200 RE/EE projects worldwide
 - ▶ Developed IT solutions and development techniques for knowledge management in climate and energy space
 - ▶ Runs Private Financing Advisory Network PFAN, with UNIDO, with over 1.2 billion USD investment leveraged

REEEP ACTIVITY AREAS



Expanding off-grid
electrification



Innovative public-
private financing
models



Energy in
agriculture



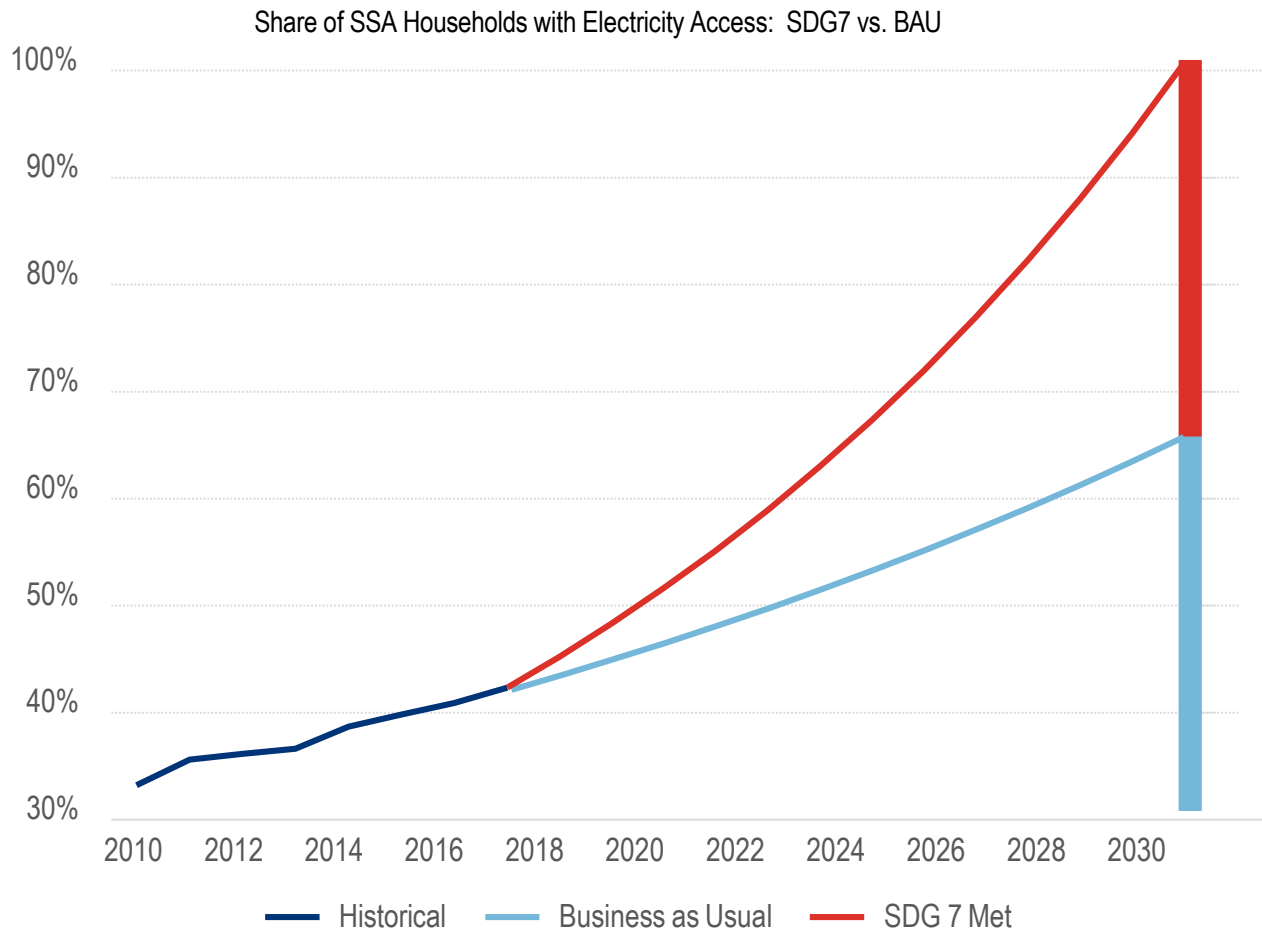
Market intelligence
and analytics

BEYOND THE GRID FUND FOR ZAMBIA



WHY A BEYOND THE GRID FUND?

- At current pace: SDG7 missed by more than 100m households



UNDER BAU:

65%

of HHs will have electricity access by 2030

104 million

HHs will remain without access (only 20M fewer than today).

\$11 billion

In capital required for mini-grid and SHS



- Over **125M HHs** lack access to modern energy services.
- With current grid extension and population growth trends, a total of **210M off-grid HHs** will need to be connected by 2030.
- Only **4 of 48 markets** are “**Active**” **off-grid electricity markets**, where more than one company selling solar home systems at scale (>20,000 customers) in that market.

WHY A BEYOND THE GRID FUND?

Missing Middle: SMEs with capital needs from US\$ 250k to 2-4m, challenges in accessing finance, talent and markets

Challenges

Expansion related challenges

- Growth Capital
- Human Capital
- Business systems and processes

Productivity related challenges

- Working capital and asset financing
- Staff retention

Ecosystem related challenges

- Gender and youth bias
- Linkages and collaboration in the ecosystem

Potential fixes

Angel investors and local philanthropists

- Growth Capital
- Human Capital

Innovative financing mechanisms

- Venture Grants
- **Blended Finance**

Business support services

- Renewable Energy Consultants
- Technical Assistance

Ecosystem players

- Government (Regulators & Policy Makers)
- Off-takers (B2B or B2C)

BEYOND THE GRID FUND FOR ZAMBIA (BGFZ)

- ▶ **Pilot USD 23m Swedish Initiative**
- ▶ Target: **Energy services for 1 million Zambians** in rural and peri-urban areas
- ▶ **Market Creation - inject public sector funding** to overcome early structural challenges in the market
- ▶ Utilize **procurement tools** to incentivize **early-stage start-up** and **longer term scale-up needs** of DRE enterprises
- ▶ **Incentivise innovation, customer rights and compliance** with strict quality / standards
- ▶ **Build investor confidence to** mobilize downstream investment

BEYOND THE GRID FUND: 3 PILLARS



Incentives and Procurement

New affordable, reliable, sustainable, modern renewable energy services



Market Information & Analytics

EDISON and MEL provide real-time evidence and market data



Platform for Market Change

Off-Grid Energy Taskforce: Support PP forum for addressing market barriers and issues

INCENTIVES AND PROCUREMENT: FUNDING ROUND 1 (2017 – 2021 | €11.5m capital)



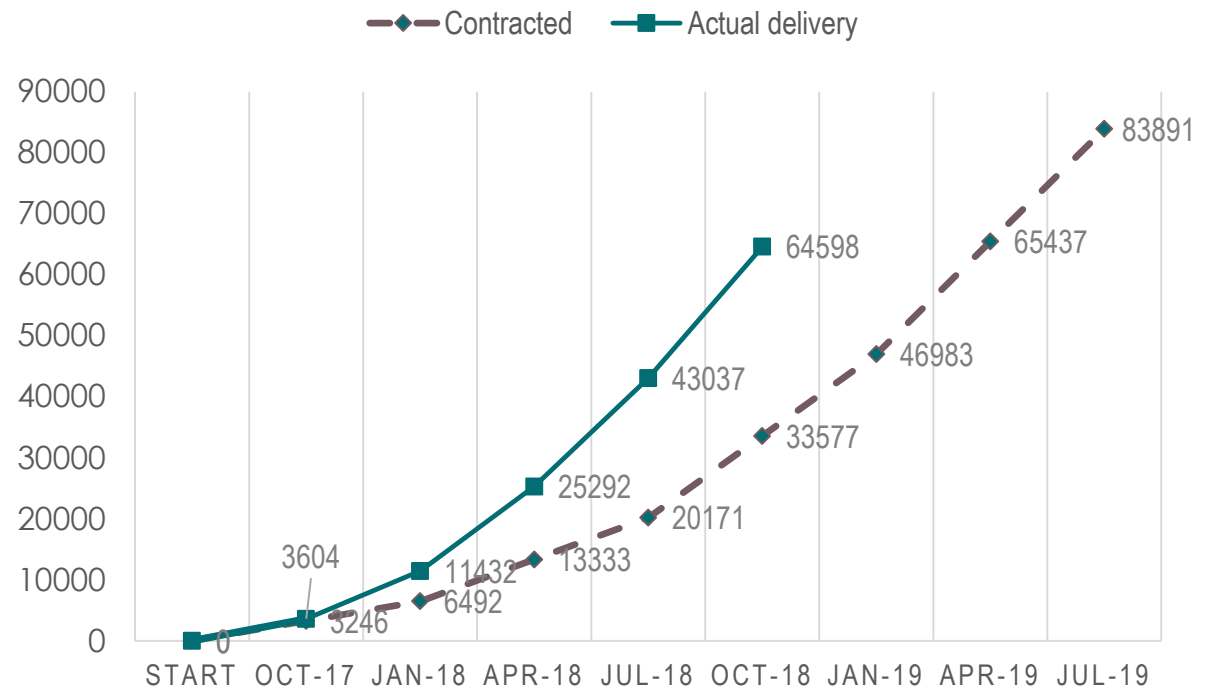
BGFZ IMPACT | OCTOBER 2018



64,598 Energy
Services

3.758.670 EUR
disbursed*

335,909 Zambian
beneficiaries**



92% above target for Oct 2018

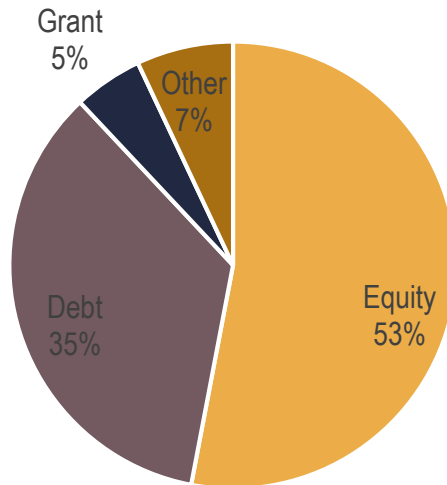
* Exchange rate as of 13. November 2018 (SEK1 = EUR0.09731)

** Based on an average household size of 5.2 people.

BGFZ IMPACT - FINANCE AND EMPLOYMENT

- ▶ In the first 15 months BGFZ leveraged significant investment, engaged new investors and created jobs

- ▶ Leveraged **USD 21 million** with
USD >20m in pipeline



Enabled the recruitment of additional 294 employees



871 new commission-based sales agents



32% of primary customers are women

BGFZ Employment Metrics

EMPLOYEES IN BGFZ ESPS

Pre-contract	Current	Y2 expected
79	294	390

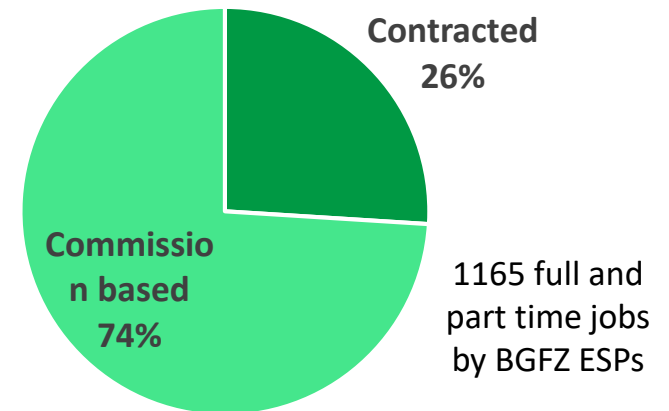
AGENTS

871

ADDITIONAL SINCE BGFZ

215 employees hired
777 agents selling ESS

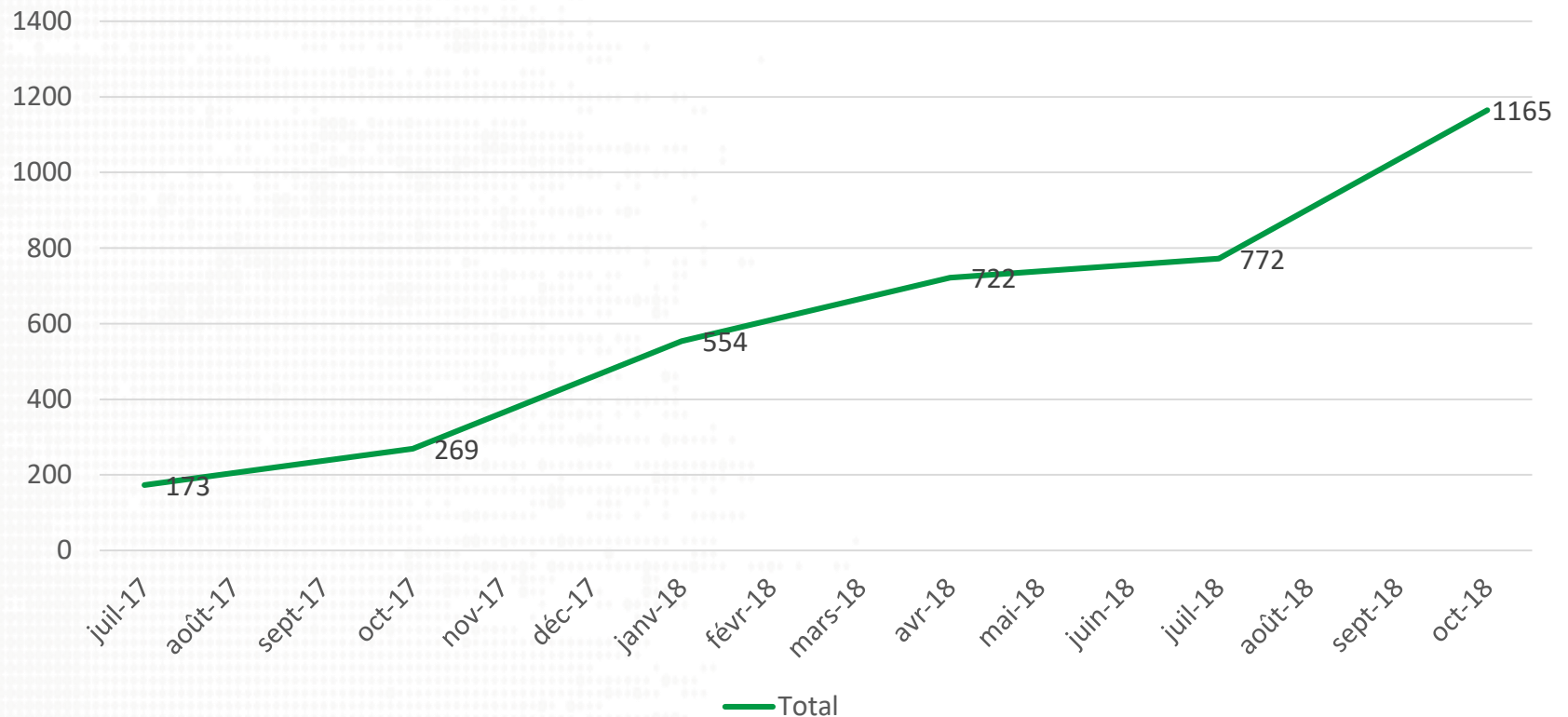
TOTAL FULL AND PART TIME JOBS



The breakdown indicates the importance of commission-based employees (often known as “agents”) in serving rural populations in markets such as Zambia

BGFZ Employment Metrics

⚡ TOTAL JOBS SINCE BGFZ - DEVELOPMENT



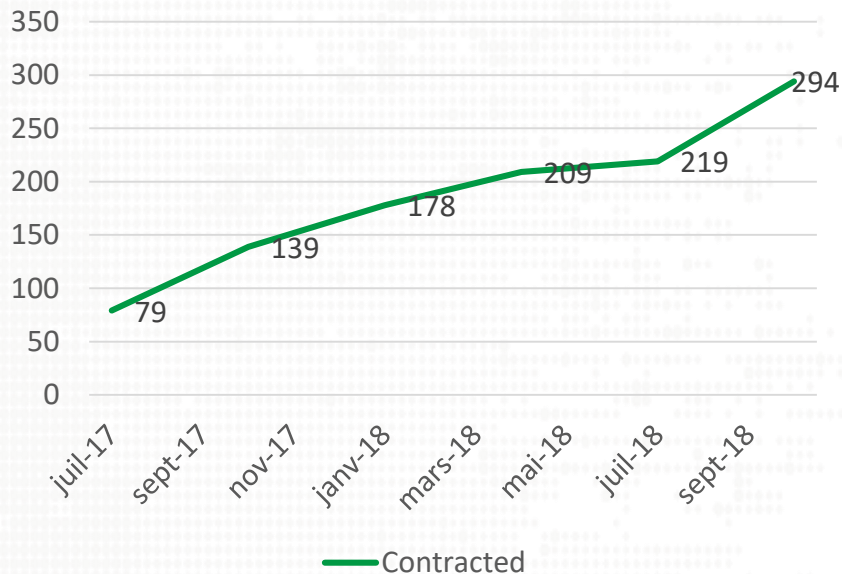
BGFZ Employment Metrics

➤ TOTAL JOBS SINCE BGFZ - DEVELOPMENT

Quarter	Additional jobs during the quarter	% of additional jobs during the quarter - contracted	% of additional jobs during the quarter - commission based	Quarterly increase – total number of jobs
July – October 2017	96 jobs	62%	38%	55%
Oct – Jan 2018	285 jobs	13%	87%	100%
Feb – April 2018	168 jobs	18%	82%	30%
May – July 2018	50 jobs	20%	80%	6%
August – October 2018	393 jobs	19%	81%	50%

BGFZ Employment Metrics

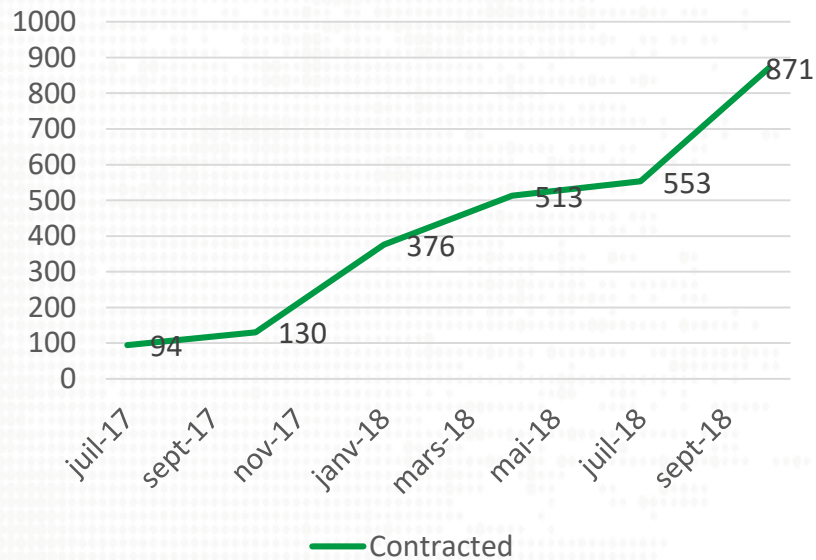
➤ CONTRACTED JOBS SINCE BGFZ - DEVELOPMENT



Quarter	Additional jobs during the quarter	Quarterly increase
July – October 2017	60 jobs	75%
Oct – Jan 2018	39 jobs	28%
Feb – April 2018	31 jobs	17%
May – July 2018	10 jobs	4%
August – October 2018	75 jobs	34%

BGFZ Employment Metrics

⚡ COMMISSION BASED JOBS SINCE BGFZ - DEVELOPMENT



Quarter	Additional jobs during the quarter	Quarterly increase
July – Oct 2017	36 jobs	38%
Oct – Jan 2018	240 jobs	189%
Feb – April 2018	137 jobs	36%
May – July 2018	40 jobs	7%
August – Oct 2018	318 jobs	57%

BGFZ Employment Metrics

⚡ TOTAL JOBS AND BGFZ FUNDING - DEVELOPMENT

Timing	Total additional jobs since contract	Total BGFZ funding disbursed	Jobs per USD 100,000 BGFZ funding	BGFZ funding per job created
October 2017	96 jobs	USD 1,885,758	5 jobs	USD 19,643
Jan 2018	381 jobs	USD 2,078,197	18 jobs	USD 5,454
April 2018	549 jobs	USD 2,784,467	19 jobs	USD 5,071
July 2018	599 jobs	USD 3,612,758	16 jobs	USD 6,031
October 2018	992 jobs	USD 4,294,235	23 jobs	USD 4,328

Employment: Gender Aspects

⚡ AVERAGE SHARE OF WOMEN STAFF AMONG ESPs

	Board	Management	Other staff	Agents
July 2018	23%	31%	33%	23%
Jan 2018	25%	23%	21%	29%



16% of jobs at BGFZ ESPs are on management level
6% of jobs created since BGFZ are management jobs

- Majority agro-dealer shops acting as agents owned by men
- Recruitment through networks rather than through open application processes contributing to the status (this is however enabling ESPs to identify quality agents).
- need alternative strategies for engaging women as agents

EARLY OBSERVATIONS AND LEARNINGS

- ▶ Need for high levels of flexibility in funding model and business models to respond to market realities
- ▶ Low income levels and underdeveloped economic infrastructure remain challenges → new solutions required to reach deep rural and lowest-income customers
- ▶ Domestic financing at nascent stages
- ▶ Policy still under development → significant opportunity
- ▶ Insufficient data and information on economics of rural / peri-urban markets, real demand and DRE funding gaps

3. DATA / ANALYTICS IN BGFZ






BGFZ | RESULTS-BASED FINANCE

- ▶ Incentives and Procurement: What is the **result** and how is it procured?
 - ▶ **Energy Service Subscription (ESS)**
 - ▶ *The contractual arrangement ... provided by the Service Provider to a customer for the provision of energy services*
 - ▶ **Technology**: Product technical specifications
 - ▶ Service **Provision Levels**: Lights, appliances, battery, etc.
 - ▶ **Terms** of Service: Deposit, PAYG loan, repayment, tariffs, EaaS, etc.
 - ▶ **Duration** of Service: Minimum 3-year warranty / 2-year service for microgrids
 - ▶ **Sustainability** of Service: Solid business model, performance, etc.
 - ▶ Results **pre-financed** based on agreed business plan and roll-out schedule

BGFZ | ENERGY ACCESS TIERS

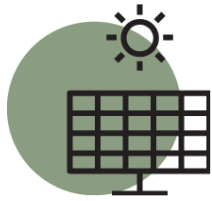
BEYOND THE GRID ENERGY SERVICE SUBSCRIPTION (ESS) MULTI-TIER MATRIX

		TIER 1	TIER 2	TIER 3	TIER 4	TIER 5	TIER 6
	HOUSEHOLD	H1	H2	H3			
	INSTITUTIONAL	I1	I2	I3			
	PRODUCTIVE	P1	P2	P3	P4	P5	P6

EXAMPLE HOUSEHOLD		Watts per ESS	Availability (hrs/day or Wh/day)	Lighting	Appliances	Weighting
	H1	Min. 5 watts	Min. 20 Wh/day +5/24h	2 lights	1 phone charge point	0.5
	H2	Min. 20 watts	Min. 80 Wh/day +5/24h	3 lights	2 appliances	1
	H3	Min. 50 watts	Min. 190 Wh/day +6/24h	5 lights (or mix of lights and phone charge points)	3 appliances	2

BGFZ | Monitoring, Evaluation, Verification and Learning

► REEEP roles as BGFZ Implementing Agency:



Programme Manager – monitoring and transparently reporting BGFZ achievement in meeting energy access targets



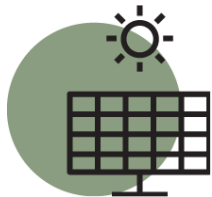
RBF Procurement Manager – monitoring and verifying service provider delivery performance of ESS against contracted targets



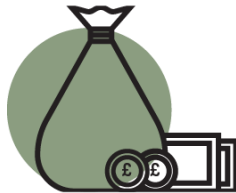
Investment Manager – monitoring and learning from service provider business model performance to dynamically mitigate risk against non-performance

BGFZ | EDISON

- ▶ Energy data and intelligence system for off-grid networks (EDISON) to automate and streamline MEL, Verification:



Programme Manager – Real-time ESS status and impact metrics to Zambian, Swedish stakeholders, and general public

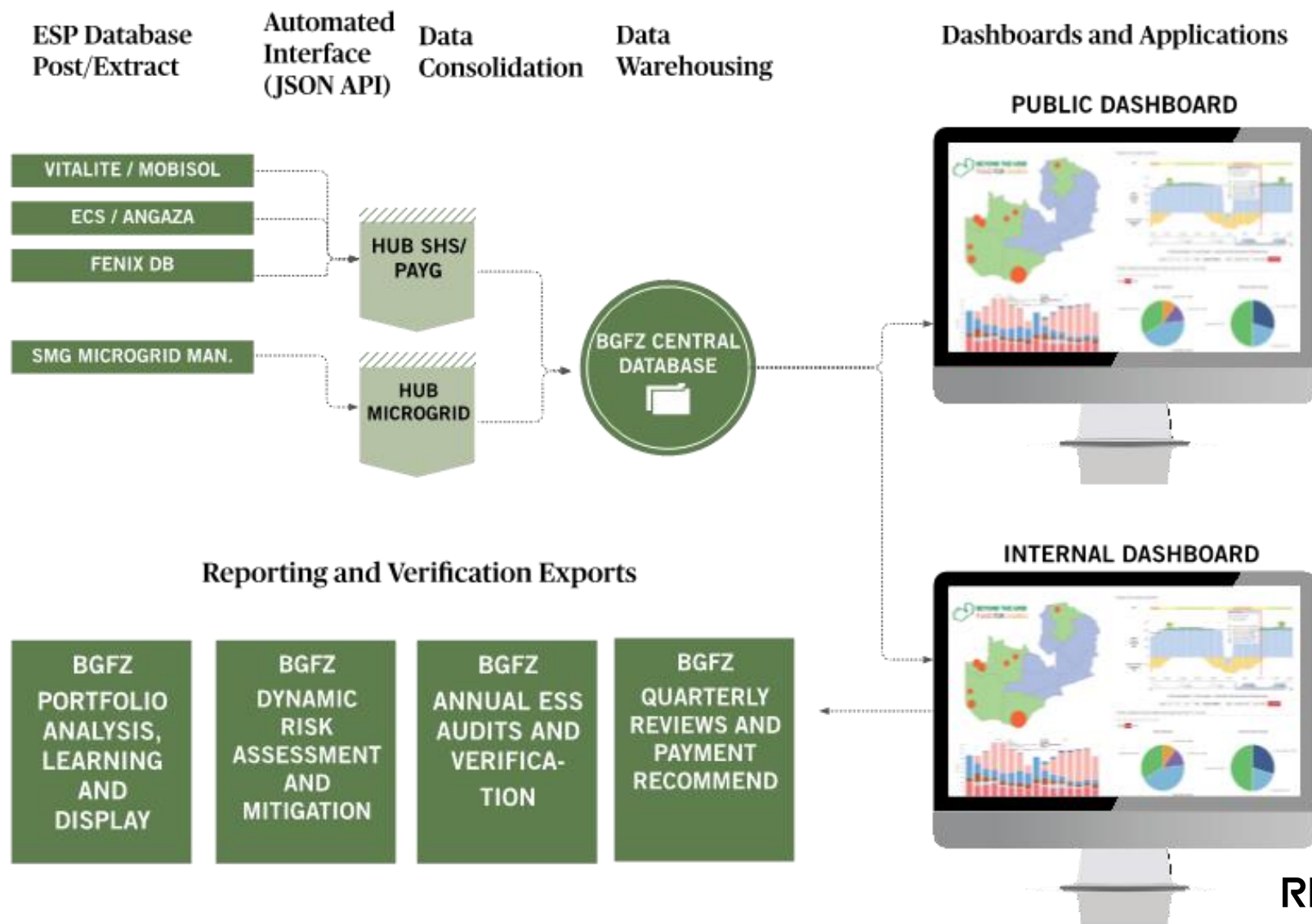


RBF Procurement Manager – Real-time status of ESS compliance and value for money of energy service companies



Investment Manager – Real-time status of key business performance and risk indicators for energy service companies

BGFZ | EDISON





EDISON

energy data and
intelligence system
for off-grid networks



BEYOND THE GRID FUND FOR ZAMBIA

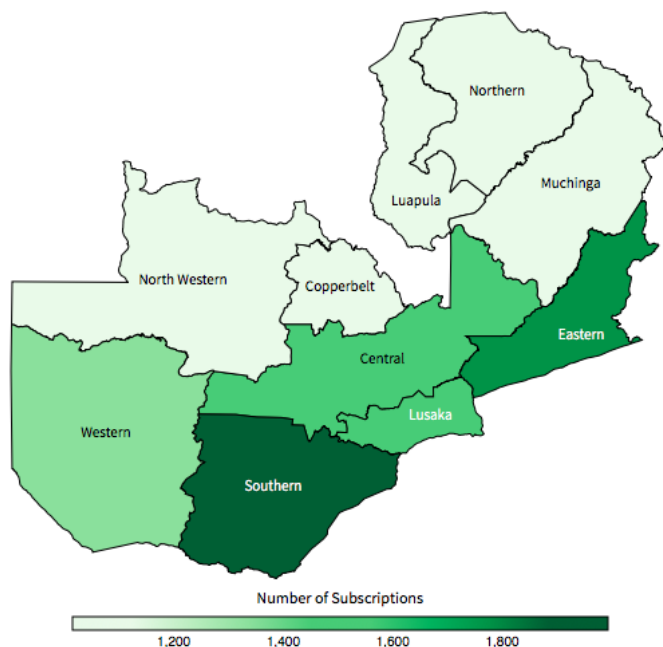
BGFZ Impact Info

Login

Selected Province: All

Reset

Print



Connections 13,513 Energy Service Subscriptions	Light Service 72,762 Candles/Lamps Displaced	People 56,746 Beneficiaries
Gender 6,533 Women Primary Customers	Jobs 51 Full & Part Time Jobs	Climate 36,443 Kg of CO ₂ Mitigated
Finance 19.7 M Additional USD Invested	Power 572 in 000's Watts	Education 13 Schools Connected

*Click cells that light up as green for more information.

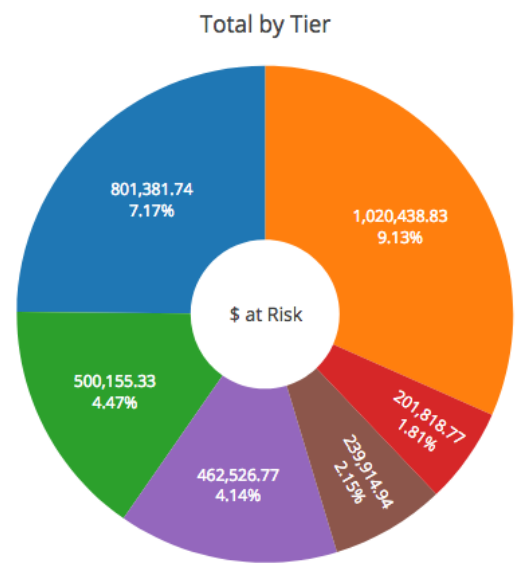
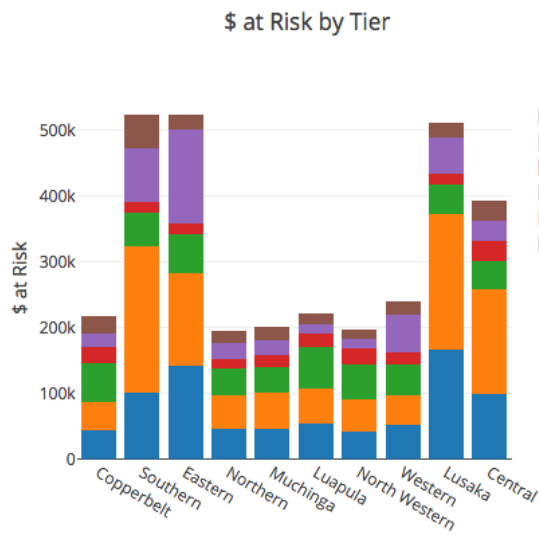
PAYG Performance: PAR30 Dashboard

Print



Chart

Data



Filters: Apply

ESP

☒ Fenix
 ☒ d. light

Seller

Seller 22

Tiers

☒ 1
 ☒ 2

Customer Type

☒ Household
 ☒ Productive

PAYG Duration

936 months

Total Financed

\$4,320

Transaction Type

☒ Mobile Money
 ☒ Token

Province

☒ Luapula
 ☒ Northern

Customer Gender

☒ M
 ☒ F

Time

Beginning of Time

to

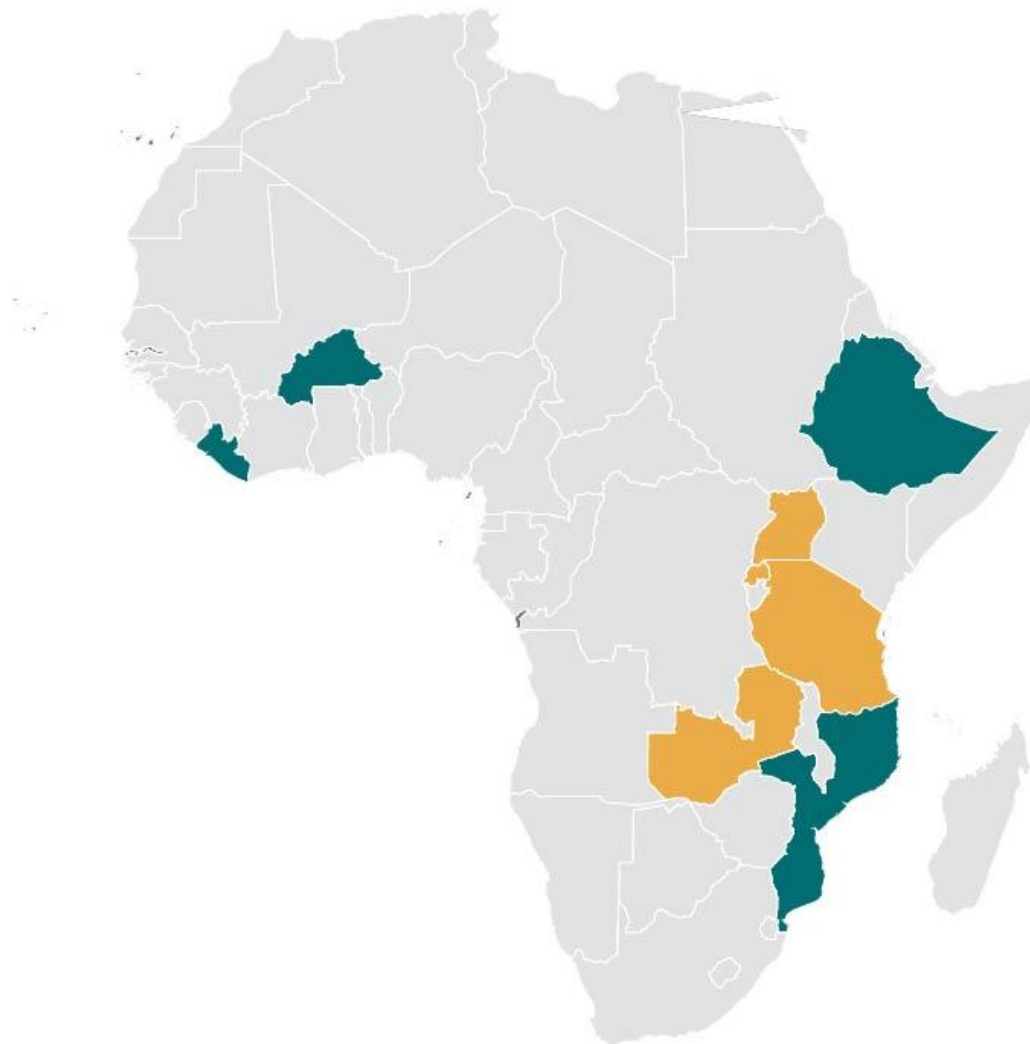
BEYOND THE GRID FUND FOR AFRICA



BEYOND THE GRID FUND FOR AFRICA

- ▶ Based on early successes, experiences and learning from two and a half years of implementation of BGF Zambia
- ▶ Expand BGF approach to a targeted group of high-need, high-potential countries in Sub-Saharan Africa
- ▶ Target of BGF expansion: USD 60m-180m in additional financing over 6 –10 years

BGFA COUNTRY APPROACH



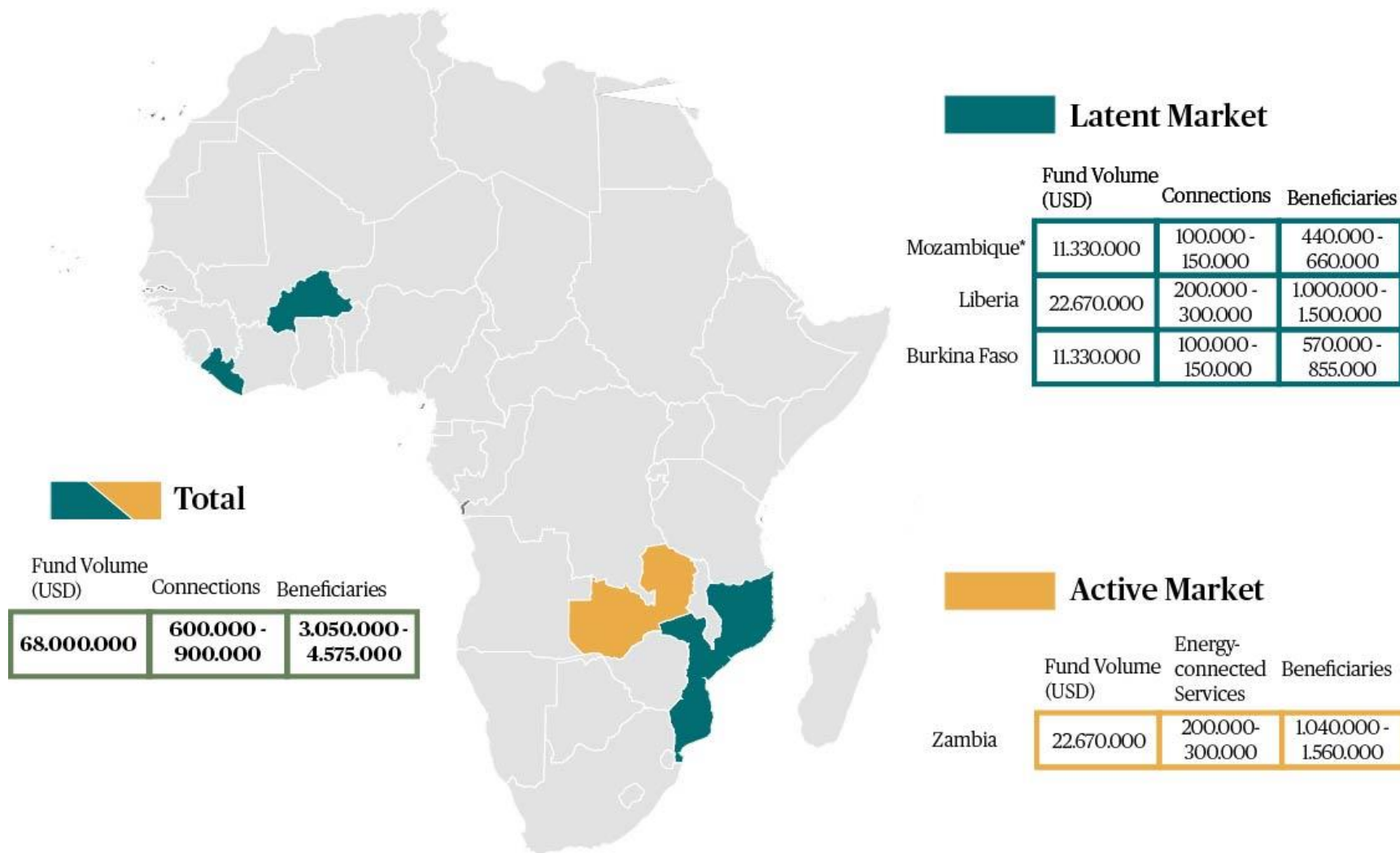
Latent Market

Multi-tier Energy Access Window /
Similar to BGFZ First Financing
Round, tailored to local require-
ments

Active Market

BGF Approach and Windows
designed to complement existing
energy programmes; additive
“energy ladder” climb-up

BGFA PHASE 1 – LAUNCH Q1 2019



BGFA HIGH LEVEL TARGETS

- ▶ Reach 5 – 15 million people in rural and peri-urban areas
- ▶ USD 50m - 170m of public finance invested, 2 - 4 additional donors
- ▶ USD 180m - 650m of private finance leveraged
- ▶ 15 – 40 concessional or private investors supporting energy access
- ▶ Stakeholder exchange and in 3-6 countries self-sustained, coordinated by local actors and interacting with each other (peer-to-peer)
- ▶ Policy environment in target countries more conducive to off-grid electrification
- ▶ Robust and effective mechanisms and systems for results-based catalytic public procurement mainstreamed in 3-6 countries

THANK YOU!

John Tkacik

Head of Energy Information and Analytics

REEEP

john.tkacik@reeep.org