

Beyond the Grid Fund for Africa (BGFA) – Liberia

STAKEHOLDER CONSULTATION WORKSHOP OUTCOME REPORT

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INTRODUCTION

This report presents the proceedings and outcomes of a **Stakeholder Consultation Workshop (the “Workshop”)** held in Monrovia at the Boulevard Palace Hotel on the 29th of October 2019 to complement and inform the Market Scoping Phase of the Beyond the Grid Fund for Africa (BGFA).

BGFA has an initial funding target of €48 million. The programme is funded by the Government of Sweden through the Swedish International Development Agency (Sida). It seeks to create sustainable markets for distributed and stand-alone off-grid energy services in rural and peri-urban Africa. BGFA is based on the successful model of Beyond the Grid Fund for Zambia (BGFZ), which in 2.5 years of operation has helped connect over 150,000 Zambian households, businesses and institutions to clean, affordable energy. These connections are deployed by private sector energy service providers through solar powered mini-grids, solar home systems and cookstoves supported by innovative PAYG business models and financing schemes. Replicating this approach, BGFA is now targeting 1 million new connections through first funding rounds in Burkina Faso, Liberia, Mozambique and a second round in Zambia. Further countries are expected to be added in 2020. BGFA is managed by the Nordic Environment Finance Corporation (NEFCO) as Facility Manager and implemented by the Renewable Energy and Energy Efficiency Partnership (REEEP) as Implementation Manager.

The Workshop in Monrovia was an integral part of the Market Scoping Phase, which is assessing the opportunities and risks for the Fund in Liberia and the other BGFA countries. Starting in June 2019, this activity is planned for a 9-month period and includes desk research, literature review and stakeholder consultations with key government departments and agencies, donors and multilateral organisations as well as civil society and the private sector. This interactive Workshop constituted the first major engagement with the private sector in Liberia and was conceived to be interactive and participatory. The Workshop was principally targeted at private sector enterprises, both local companies already active in Liberia, and international companies interested in potentially entering the market. Invitations were sent to a database of companies and contacts compiled through the BGFA Scoping Phase activities and complemented through the networks of the Swedish Embassy, NEFCO, REEEP, PFAN, GOGLA, AMDA, AfDB, etc.

The workshop brought together stakeholders from public institutions, the private sector and other technical and financial partners in the renewable energy (RE) and off-grid sector in Liberia to present the programme to participants, gather information on the local energy market and generate ideas for the design and development of a first funding round tailored to Liberia. More than eighty participants took part in the event, representing companies from a large range of sectors including solar home systems, mini-grids, clean cooking fuels, improved cookstoves, as well as financial institutions. The businesses included many companies already active in Liberia and some considering entering the market. Key decision makers, such as the Minister of Mines and Energy, the Managing Director of the Liberia Electricity Regulatory Commission (LERC), the chief Executive Officer of the Rural Renewable Energy Agency (RREA) represented the public sector. Development partners and NGOs also attended the workshop. The agenda is available in Annex 1. A list of participating companies and institutions can be found in Annex 2.

This report provides an overview of the proceedings of the workshop as well as a summary of the principal outcomes and recommendations of the various discussions in breakout groups. These recommendations will complement the information and insights gathered during the Scoping

Phase and will flow into the analysis that will in due course result in recommendations for the design of the Funding Windows for the Fund in Liberia and the other BGFA target countries. Similar activities have been carried out in all the BGFA target countries to ensure due process, maximum transparency and open access.

1 BACKGROUND

Nearly two out of every three people in sub-Saharan Africa live without access to electricity, and are unlikely to be connected to central utility grids in the foreseeable future. Decentralised renewable energy (DRE), delivered by market actors directly to consumers, has been proven in nascent and emerging markets across Asia, Africa and Latin America to be more efficient and effective in quickly expanding energy access to underserved rural and peri-urban areas than traditional approaches such as centralised power grid expansion.

Against this background, the **Beyond the Grid Fund for Zambia (BGFZ)** was launched in 2016 at the initiative of the Swedish Government. BGFZ is implemented by REEEP and forms part of the Power Africa initiative, which is supported by a number of donor governments, including Sweden. BGFZ contributes to progress towards *Sustainable Development Goal 7 (SDG7) – Ensure access to affordable, reliable, sustainable and modern energy for all.*

Initial results of the Beyond the Grid Fund for Zambia (BGFZ) have shown that innovative results-based financing can be a powerful instrument to guide, support and incentivise early private sector movers to accelerate market development and scale up business ventures in frontier off-grid energy markets. By providing smart incentives for firms to provide high volumes of energy services over a defined period of time, such instruments can empower companies to rapidly mobilise private investment and scale operations to accelerate development of markets otherwise perceived as too high risk.

Incentives and Procurement

The cornerstone of BGFZ is a public procurement approach to market-based electrification, in which private sector bidders offering the best “value for money” – capable firms offering a credible business plan, high quality services and customer care, reaching as many customers as possible with the lowest demands on public finance – are awarded results-based contracts to deliver specified outcomes. In the Zambian experience, these contracts have proven to be catalytic in creating new markets and attracting equity investment and impact debt (including crowdfunding), in addition to other forms of financing.

BGFZ provides early working capital in the form of start-up grants and predictable results-based revenue streams that contribute to the sustainable growth of a company. It bridges a key gap between early-stage innovation capital, such as that provided by challenge funds, and concessional-to-commercial capital provided by impact investors, development banks, DFIs and others.

Platform for Market Change

In Zambia, the programme also provides significant technical assistance to support internal reform and capacity building. Based on the experiences of the contracted companies, the programme identifies market risks and challenges. These are addressed together with

government, development partners, financial and private sector stakeholders in an Off Grid Energy Task Force, which meets regularly.

Market Intelligence and Analytics

Finally, the programme collects and analyses critical data and information on deployments of connections from contracted service providers, delivering a high degree of security in verification of results, and contributing to efforts to help market stakeholders improve investment and other development-related decision making.

The implementation of the first BGFZ round (Zambia I) began in July 2017. Overall, the four contracted companies are currently ahead of their set schedule and as of December 2019 have deployed over 150,000 Energy Service Subscriptions (ESS) in total, reaching around 780,000 Zambians in rural and peri-urban areas.

From BGFZ to BGFA

Based on the promising results of the approach in Zambia, the Swedish Government is seeking to expand the programme to three additional countries with energy access challenges – Liberia, Burkina Faso and Mozambique – and implement a second financing round in Zambia. To support rapid programme expansion, REEEP has joined forces with the Nordic Environment Finance Corporation (NEFCO), an established international financial institution with significant expertise in managing trust funds on behalf of public donors. NEFCO will manage the envisaged multi-country BGFA, and REEEP will implement.

The first phase of this multi-country expansion is a 9-month **Market Scoping** period, during which the BGFA team is exploring the opportunities for applying the Beyond the Grid approach in the new markets, producing a matrix of ongoing energy access programmes and initiatives, assessing key challenges and risks, and developing high-level scenarios for funding rounds in all four focus countries. The market scoping in Liberia includes interviews with key stakeholders in the energy sector such as government actors, donors, energy access programmes and financial institutions; as well as the private sector stakeholder consultation workshop described in this report.

2 WORKSHOP PROCEEDINGS

The workshop consisted of three parts:

- Opening Statements by the Swedish Embassy in Liberia and the Ministry of Mines and Energy (MME);
- An information session during which key stakeholders from Liberia set the scene by providing a summary of the policy and regulatory backdrop and an overview of existing programmes and activities. This included presentations by the Rural Electrification Energy Agency (RREA), the Liberia Electricity Regulatory Commission (LERC) and the Liberia Energy Access Practitioners Network (LEAP);
- A discussion session during which the participants were divided into four working groups to discuss key issues (proposed by BGFA) and make recommendations to BGFA for further consideration.

The full agenda for the workshop is provided in Annex 1. The following sub-sections provide an overview of the Opening Statements and Information Sessions. Section 3 provides the summary of the group discussions.

2.1 OPENING STATEMENTS

2.1.1 SWEDISH EMBASSY IN LIBERIA

Elisabeth Hårleman, Head of Development and Cooperation at the Swedish Embassy, officially opened the Stakeholder Consultation Workshop and stressed Sweden's commitment to supporting the Government of Liberia (GoL) in developing its energy sector. After reminding participants about the initiatives implemented by the GoL with the support of development partners targeting rural electrification in accordance with the ECOWAS regional electrification plan, Ms. Hårleman presented the new programme, BGFA. BGFA will target the provision of sustainable and clean energy services in rural and peri-urban areas of Liberia, in order to improve the living conditions of rural communities, in particular women and children. Also, BGFA is expected to work closely together with and complement as much as possible other donor-funded programmes, in particular the newly approved EU programme, "Rural Electrification Programme prioritising the South-East of Liberia".

2.1.2 MINISTRY OF ENERGY

Honourable Gesler E. Murray, Minister of Energy, welcomed participants on behalf of the Government of Liberia (GoL) and President Dr. George Manneh Weah. Access to affordable and clean energy is a key priority of the Government under the Pro-poor Agenda for Prosperity and Development (PAPD), which seeks to increase energy access to 30% by 2023 through both on- and off-grid electricity generation and distribution. In rural areas, the Rural Renewable Energy Agency is working towards an increase of electrification levels to 35% by 2030. The Government is encouraging more investment in the local production of affordable and efficient cook stoves in the country with a target of having 250,000 efficient cook stoves in use by 2030. Under this framework, the Hon. Minister welcomed the timeliness of the BGFA initiative, highlighting that through its incentive mechanism relying on a results-based financing scheme (RBF), the

programme will support the Government in delivering the PAPD through the provision of clean and affordable off-grid energy to Liberians living in rural and peri-urban areas.

2.1.3 RENEWABLE ENERGY AND ENERGY EFFICIENCY PARTNERSHIP

John Tkacik, Director of Energy Analytics at REEEP, presented the experience of the Beyond the Grid Fund in Zambia and outlined the thinking and process behind the expansion of the Beyond the Grid Fund to other countries, including Liberia. In Liberia, the fund has a budget of €10 million, of which €7 million will be awarded as results-based financing (grants/free-equity) to energy service providers in order to scale up the delivery of off-grid energy services. In order to be supported by BGFA, firms will be requested during the tender stage to submit a robust and financially viable business model clearly highlighting their proposed financing structure (equity, debt and grants) and the number and the quality of services that can be deployed over the 5-year implementation period of the fund.

2.2 SETTING THE SCENE

Key government institutions involved in the energy sector made position statements to set the scene for the subsequent discussions.

2.2.1 RURAL AND RENEWABLE ENERGY AGENCY

Steven Payma, Business Development Officer at the Rural and Renewable Energy Agency (RREA), gave an overview of the mandate of RREA and outlined current initiatives to accelerate rural off-grid electrification, including the Rural Energy Strategy Master Plan. Key take-away points from this presentation include:

- RREA has an ambitious plan to increase rural electricity access to 35% by 2030 and electrify about 265,000 homes, providing energy to approximately 1.34 million people.
- RREA manages the Rural Energy Fund, a funding mechanism aimed to facilitate the coordinated funding of economically viable, socially acceptable, and environmentally friendly rural electrical and improved energy technology projects and programmes through public-private partnerships.
- Over the last five years, RREA's Lighting Lives Liberia project has played a direct role in stimulating the young off-grid solar market. It supported thirty retailers, selected based on an assessment of their business plans and processes. RREA served as a bulk procurer, buying and importing renewable energy products on behalf of the retailers, which provided a 10% upfront payment. The products benefitted from a full import duty waiver as well as economies of scale in transportation. This lowered the costs along the supply chain and the final retail prices of the products. Retailers also received technical, financial and business training. Lessons from this intervention can serve as building blocks for long-term renewable energy market development and can be of relevance for the BGFA Liberia programme. To date, the intervention has led to the selling of 37,223 quality certified systems across the country, benefiting more than 100,000 Liberians. A network of two import distributors and 49 rural retail distributors was developed to support the growth of the renewable energy sector. RREA also undertook market and consumer outreach efforts and established a framework for future market development.

Based on the successes achieved and challenges identified during their programmes, RREA made the following recommendations to BGFA:

- Promote quality: support the development of harmonised national quality standards including the introduction of the Pre-Shipment Conformity Assessment Program.
- Support the setup of after-sale centres: support the development of a consumer-focused quality seal with international manufacturers to set up repair centres in the country.
- Avoid market distortions: enable companies to set prices and margins for their products.
- Catalyse investment to the RE sector: encourage donors to provide grants, working capital and technical support.
- Accelerate the transition away from cost-specific subsidies (e.g. transportation) towards Results-Based Financing based on milestones and sales.
- Engage in stakeholder coordination in a way that supports RREA in providing leadership, coordination, and oversight of the sector.
- Set up an Off-Grid Solar Sub-Committee under the Rural Energy Working Group.

2.2.2 LIBERIA ELECTRICITY REGULATORY COMMISSION

Augustus V. Goanue, Managing Director at the Liberia Electricity Regulatory Commission (LERC) presented LERC and the current regulations applicable to the off-grid energy sector. LERC was established based on the 2015 Electricity Law, which defines the current legal framework for the off-grid electricity sub-sector.

The Liberian off-grid electricity sector has mostly been left unregulated, and has so far been characterised by unclear policy directions and poor implementation of existing policies and strategies; a lack of technical and operational standards, codes and guidelines to measure the performance of operators or service providers; the use of non-commercially viable technology; limited private sector investment; and limited technical skills and capacity of local actors.

In order to remedy this situation and promote investment in rural electrification, new regulations are currently under development. The Micro-Utility Regulation is under finalisation and will set thresholds in terms of installed capacity at which different requirements (permit/license) apply.

Type of Regulatory Instrument	Category of Micro-Utility (MU) License/Permit	Threshold - Installed capacity range of MU facility (Cinst)	Duration of the license or permit
Permit	Small MU Permit	Cinst < 500kW (including Self-Supply with customer sales)	Up to 5 years
	Medium MU Permit	500kW ≤ Cinst < 1 MW	Up to 7 years
License	Medium MU License	500kW ≤ Cinst < 1 MW	Up to 10 years
	Large MU License	1 MW ≤ Cinst < 10 MW	Up to 15 years

The LERC Tariff Regulations and Methodology is at a less advanced stage and will contain provisions for micro utility operators or service providers.

2.2.3 LIBERIA ENERGY ACCESS PRACTITIONERS NETWORK

Royston S. Gbelia, President of the Liberia Energy Access Practitioners Network (LEAP) presented the main challenges and opportunities for the private sector. One major challenge highlighted by LEAP is the lack of clear policy directions, which translate into unclear guidelines. This was illustrated with an example about the implementation of import duty waivers for improved cookstoves. In order for duty waivers to provide the required incentives, clear guidelines must exist. An implementation of duty waivers on an *ad-hoc* basis when the goods are already waiting for custom clearance doesn't offer sufficient guarantees for investors.

Another challenge faced by Liberian SMEs in the sector is the lack of coordination between NGOs, whose projects end up overlapping. LEAP reported that some NGO programmes have resulted in market distortions and suboptimal resource allocation, especially when solar products were distributed for free in the same areas where retailers supported by NGOs were offering solar products for sale. LEAP raised the need for a more rigorous selection of awardees, in particular by NGO programmes. Reportedly, new grants tend to trigger the creation of many opportunistic businesses which stop operating as soon as the grant ends. There is also a need to monitor the types of products sold by awardees in order to prevent the importation and sale of fake or inferior goods at lower prices. LEAP welcomed BGFA and expressed the hope that the programme will contribute to building the necessary technical, logistical, and financial skills of Liberian SMEs, so that they can contribute to the growth of the off-grid RE market in Liberia.

3 GROUP DISCUSSIONS

The discussion groups were designed to encourage in-depth discussions on specific topics, and to obtain information from the participants' different perspectives on different themes. Participants were divided into four groups to examine the following themes:

- Group 1 - Theme: Mini-grids: business models and financing - Implications for BGFA
- Group 2 - Theme: SHS and clean cooking solutions: business models and financing- Implications for BGFA
- Group 3 - Theme: Regulation, Public Sector Roles and Coordination
- Group 4 - Theme: Social & Development Issues

At the end of the discussions, each group made a presentation on its theme and gave recommendations for the BGFA programme in Liberia. The summary of key discussion points, conclusions and key recommendations of the breakout sessions are outlined below.

3.1 GROUP 1: MICRO/MINI-GRIDS

About 30 attendees participated in the mini-grid discussion group. The majority were representatives of small local companies engaged in a variety of activities centring on off-grid energy service provision (from pico-systems to large standalone systems for commercial clients). A small number of participants have, either currently or previously, operated a distributed power grid (mini-grid) serving a range of customer types, and several companies were involved at various stages in the off-grid/renewable energy product supply chain. There were no representatives from internationally active firms outside of Liberia. Other notable participants

included a senior representative from the Liberian RREA, the GIZ/EnDev, as well as representatives from civil society and NGO groups. There was no participant from the formal financial sector in this group.

The discussion commenced with a general introduction to the subject and framing of the conversation according to the pre-prepared questions for the mini-grid group (see Annex 3), although participants were invited to drive the discussion however they felt was sensible as long as the discussion remained topical and relevant to the issue of deploying mini-grids in Liberia.

The discussion focused largely on the perceived lack of available financing to private companies in the sector; capacity gaps in various subsectors of the market, operational and related constraints, and on the Liberian government's objectives as they correspond to mini-grid electrification.

KEY OUTCOMES, ISSUES AND CONCERNS

Participants examined issues related to mini-grids deployment and financing, opportunities that exist for mini-grids in Liberia and existing energy service levels, including quality, affordability, pricing and key barriers in the mini-grid energy space. The shared experiences indicated the following issues and problem areas:

- The potential for mini-grid development in Liberia is high, as many communities remain unconnected to the central grid due to the high cost of energy distribution in the country, and despite being in relatively near proximity to sufficient power generation and/or transmission lines (either already or planned in the very near future).
- The mini-grid sub-sector is still in its infancy, as confirmed in the presentations from LERC and RREA. The capacity of private developers in the sector is low: no developer operates more than one mini-grid, and no developer has followed a build-own-operate (BOO) model. Instead, most developers have taken over infrastructure designed and installed by third parties, typically in the context of donor/development projects. Capacity building in all areas (commercial, financial, technical, etc.) was identified as a key need for the sector.
- Currently, most investments in mini-grids are donor-funded, although some developers indicated having invested a limited amount of equity into operations. Capital expenditures have exclusively been donor-funded, except in the informal mini-grid space. In particular, the limited private sector participation in the project development stage has affected the long-term sustainability of the sector.
- A lack of coordination among the many donors was seen to have led to market distortions. Most or all donor project financing in the sector has taken the form of CAPEX grants, financing Engineering-Procurement-Construction operators (EPCs) for building generation, transmission and distribution infrastructure. Very limited funds are made available to support ongoing operations.
- Participants noted that master plans and electrification strategies need to be reliable and comprehensive to mobilise private investment and commercial activities. This point was acknowledged by the RREA representative, who stressed that the Government is currently addressing this matter.

- Increased coordination between private developers and relevant government agencies will be important to attract private investment into the sector. In some instances, mini-grid operators have only become aware of mini-grid deployments when tenders were issued to procure an O&M contractor, and after an EPC had finalised the construction of a mini-grid infrastructure. This approach was seen to have hindered planning and management, and locked operators into unfavourable conditions, leading to sustainability issues, particularly the ongoing recovery of operating costs.
- Most donor-funded mini-grids are designed according to technical and economic assessments putting the priority on the number of connections, sometimes disregarding their end-customers' ability to pay. In some cases, contractual arrangements prevent operators from disconnecting non-paying high priority customers. The resulting financial losses impede operators to adequately maintain the infrastructure and expand ongoing operations. Participants noted indeed that many projects have been abandoned. This issue was perceived as sensitive but nonetheless important in determining the bankability of mini-grids.
- Most mini-grids providing lower levels of access (Tier 1 and 2) are underperforming and many have been abandoned, due to the inability of operators to recover operating costs. Ineffective or non-existent management is often at the root of unreliable power generation.
- Ability to pay is an important concern, as the average purchasing power is very low, especially in rural areas. Willingness to pay is also an issue. Payment systems enabling the disconnection of non-paying customers are needed to encourage regular and prompt payment. Commercial customers with pre-paid payment plans are seen by operators to be the most desirable customers.

KEY RECOMMENDATIONS FOR BGFA

Participants suggested the following recommendations for the proposed BGFA programme in Liberia:

- Promote local/distributed mini-grid power generation instead of relying solely on external generation (e.g. the Côte d'Ivoire – Liberia – Sierra Leone – Guinea (CLSG) interconnector importing power from Côte d'Ivoire).
- Provide capacity building that will help enable companies to better determine creditworthiness of customers and integrate this into financial models.
- Seek to improve data and information collection from projects, and sharing to improve government and private sector planning.
- Launch the BGFA financing round if possible before the planned starting date in 2021. The immediate need for funding and energy services is high.
- Support commercial banks in extending loans to mini-grid developers (e.g. vetting programmes). Potentially, BGFA could work with financial institutions to help them better evaluate and perform due diligence on BGFA-awarded projects, which would help unlock private financing into the sector.

- Support improved coordination of stakeholders in the sector.
- Incorporate debt and equity financing for mini-grid project development in the BGFA funding window.
- Prioritise funding for energy services that support productive use, e.g. in the agricultural sector.

3.2 GROUP 2: SOLAR HOME SYSTEMS (SHS) AND CLEAN COOKING SOLUTIONS

Some 37 workshop attendees participated in the mini-grid discussion group. The majority of these were local companies active as SHS distributors, solar equipment resellers and installers as well as companies active in the biomass sector as stove manufacturers and sellers, and charcoal / biomass briquette producers and distributors. One internationally active company looking to enter Liberia (Easy Solar), as well as civil society and NGOs were represented. There was no representation from government, donors or the financial sector.

The discussion commenced with a general introduction of all participants and their respective activities, operational experience and where they saw gaps and opportunities in the current market. Interest was concentrated very much on the financing / commercial, logistical and demographic challenges facing companies operating in Liberia. The discussion was guided by the questions prepared for this session as provided in Annex 3 but also included other relevant issues. The discussion was dominated by companies from the biomass sector on account of 2 companies in this sector being well established and having much more operating experience than others at the table. It should be noted that the discussion was quite rudimentary and did not go into detail around customer segmentation, pricing, subsidy targeting, regulation and market scaling / growth. It appeared that the market is at an extremely early stage of development and level of sophistication, very much dominated by transactional approaches and day to day survival rather than strategic thinking and concerted development.

KEY OUTCOMES, ISSUES AND CONCERNS

The following issues and problem areas were identified and discussed:

- 98% of energy in Liberia is provided by biomass, primarily firewood and charcoal, including urban areas. The charcoal market is valued at USD 43 million pa (World Bank data). A number of companies are trying to address this market, particularly by focussing on production of bio-charcoal from agricultural waste to avoid deforestation, but production levels are low. These companies have scaling plans but are constrained by the lack of finance. Retailers in Liberia sell 20 kg of bio-charcoal at about USD 5, but charcoal from forest wood is generally cheaper.
- Basic improved cookstoves (locally manufactured) for charcoal and biomass briquettes can be purchased from USD 20-30. However, this cost is still prohibitive for the average household in Liberia. The affordability barrier is even more of a challenge for the more sophisticated biomass stoves for bio-charcoal briquettes. Distribution of stoves has traditionally been through NGO programmes and community outreach coupled with education and training on the use of the stoves and the benefits of biomass as opposed to firewood/charcoal.

- Key business challenges include access to finance and the sourcing of raw materials. Most existing funding programmes require at least 25% upfront matching co-funding which is often prohibitive.
- One cookstove provider is providing stoves on a PAYG basis with payments through mobile money but there is no direct link to the stove or ability to lock the service.
- The market for solar energy is at a very early stage of development and has a high potential for growth, especially for SHS. A 6W SHS with 4 lights, radio and phone charger will typically retail for about USD 120. Current business models involve the distribution of SHS products to people working in government ministries, agencies, commissions and others with stable income streams. Payments are made as one-off (in-cash) or multiple deferred payments. Customers generally make payments via mobile money connected to a PAYG system.
- Trials to market SHS using PAYG over 11-month payment plans are currently being implemented in rural areas. Distribution logistics is challenging, not least in the rainy season, and increases end-user costs by at least 30%. Sales are also reduced in the rainy season. Some companies are trying to establish agent networks but these are very small and still quite informal. Local companies are rarely able to provide training and agent support nor comprehensive warranty and maintenance coverage on a reliable basis. Incentives for agents tend to be *ad hoc* and there is much circumvention.
- Affordability is a major barrier. There is not much experience or data on ability to pay but participants estimated that the disposable income for energy is about USD 5-10 per month. The upfront cost is often prohibitive, even on payment plans. Default and delinquency rates tend to be quite high.
- Marketing and distributing standardised products in peri-urban and urban areas is difficult, as customers tend to prefer customised systems. Two companies are installing 5W & 30W standalone systems depending on the anticipated load of the customer and sell electricity (kWh) on the basis that the customer's requirements increase over time and that the system can be paid back. Under this framework, the system remains property of the provider. Companies have been known to ask for title deeds of houses or other collateral as security for the repayment instalments.
- There is little information or data on market demographics/segmentation and grid extension so providers find it difficult to develop and target marketing strategies. Easy Solar has performed market surveys in 9 counties and is using this as a foundation to tailor services for the market. Currently, on-line and off-line methods are used to collect customer data and track payments depending on the locality. GSM networks are still unreliable and intermittent in more remote, rural areas.
- Given poverty levels and lack of cash in the local economy, sales of energy services and appliances are driven purely by the price level. There is no concept of comparative value of services or products. In addition, markets and customers have been "spoiled" by the distribution of free products (SHS & cookstoves) by NGOs, often using low quality products which further distort the market and negatively influence customer perception and future take-up / willingness to pay.

KEY RECOMMENDATIONS FOR BGFA

- Reduce import tariff as the initial payment for SHS product are too high for low level income earners.
- Work with relevant agencies to set up regulatory systems for quality control of SHS products to reduce competition and price distortion by inferior products.
- Improve and increase information, education and communication regarding the use of biomass and SHS products.
- Develop financial models that reduce the cost of acquisition of biomass and SHS products to increase usage and access.
- Support business and financial management capacity of local RE businesses to increase their business development competence.
- Promote the use of PAYG payment systems to ensure effective payment collection.
- Invest in data collection, analysis and accessibility processes. This will assist the BGFA programme to make better market projections and interventions in the RE sector in Liberia.

3.3 GROUP 3: REGULATION & THE ROLE OF THE PUBLIC SECTOR

The regulation discussion group comprised about 15 participants, including LERC's Managing Director, a representative of the Ministry of Finance (MoF), the President of the LEAP network, several distributors of small solar systems, one company involved in building transport/distribution networks, a micro-finance institution, NGOs and civil society organisations, and a representative of Power Africa/USAID.

KEY OUTCOMES, ISSUES AND CONCERNS

Participants examined matters related to regulations in place, discussed how these could be strengthened to create opportunities for the private sector and enable them to scale up. The 2015 Electricity law governs the sector, but the main body of regulation remains to be created. The regulator, LERC, is newly established and as a result, the sector is largely unregulated:

- LERC is in the process of developing and validating some the necessary regulations and technical standards for the sector. The draft Electricity licensing regulation (for installed capacities >10kW), the draft Micro-utility licensing regulation are being finalised and will be summarised into a "Licensing Handbook and Administrative Procedures Regulations". This will act as a manual to provide potential investors with an understanding of the licensing process. A tariff regime methodology is under development, and the team who will work on the technical standards is currently being recruited.
- As key aspects of the regulation are still under development, including the tariff methodology, at this stage, it is difficult to articulate the opportunities that various regulations will provide for the private sector companies. Notwithstanding, the group discussion showed that most private sectors companies are not yet conversant with the proposed draft regulations.
- Participants stressed the need for increased regulation on the following aspects: safety standards, minimum technical standards for micro/mini-grids, as well as licensing or

certification procedures of SHS installers, and other professionals (e.g. engineers) to ensure that firms active in the sector have the required technical skills and are insured.

- For mini-grids, the discussion highlighted the need to clarify the options available to developers, in particular in the case PPPs could be considered (Build-Own-Operate-Transfer 'BOOT', Build-Operate-Transfer 'BOT', etc.).
- Participants mentioned the high tariff on solar energy products as a major barrier to scale, and suggested that tax exemptions/tax reductions/subsidies would help private sector suppliers reduce overall cost and compete with low grade goods suppliers. Duty waivers are currently applicable on solar products imported by RREA on behalf of local distributors, and the MoF is considering reducing tariffs on solar products in a more systematic way. A study about the potential impact of the foregone tax revenue, as well as the potential impact for the off-grid sector, has been commissioned and is being finalised. The MoF indicated that cookstoves and mini-grid equipment (batteries, etc.) were not yet considered for a potential import tax reduction.

KEY RECOMMENDATIONS FOR BGFA

As the sector is largely unregulated and private stakeholders were not familiar with the upcoming reforms presented by LERC earlier that day, other public initiatives which could support the private sector were also discussed. Participants hoped that these could be considered by BGFA:

- Only a few established players exist in the industry. In order to increase the pool of skills in the sector and the number of players, participants stressed the need for capacity building programmes in business and financial management, as well as project development.
- The creation of a quality label would ensure that quality products are imported and distributed and help the establishment of the off-grid RE sector in the short/medium term. Similarly, established SMEs hoped that programmes will increasingly put the emphasis on the sustainability of the services deployed, through the promotion of after-sales services and the selection of established operators who need to work towards the satisfaction of their client base in order to scale up.
- Raising awareness of the private sector on the implications of upcoming regulations, as well as facilitating a dialog between LERC and local SMEs is required, so that private sector stakeholders can identify opportunities offered by the current reforms.

3.4 GROUP 4: SOCIAL & DEVELOPMENT ISSUES

The social and development issues group comprised 18 participants, including representatives of private sector companies and consultants, government cooperating partners, NGOs and civil society. One of the group participants, Mercy Corps, an international development organisation, shared its experiences with regards to implementing a renewable energy programme - “light up Liberia” funded by the EU. The programme primarily involved the provision of business development support including logistics and marketing support to selected SMEs to facilitate the sales of renewable energy products in rural areas in order to expand renewable energy access in rural Liberia. Other organisations with experience in working with women’s groups in rural areas also contributed to the discussion. The group discussion was guided by the prepared questions as provided in Annex 3. The discussion focused primarily on the opportunities for renewable energy in rural Liberia, the challenges of private companies in commercialising these opportunities, the roles of women and their influence in the purchase and use of RE products, women’s involvement in the RE business and the general challenge of payment collection from customers connected to pico-grids or using PAYG SHS.

KEY OUTCOMES, ISSUES AND CONCERNS

The discussion covered issues including building local capacity, training local staff in rural areas, gender and poverty reduction:

- Most local companies are at an early stage of development and cannot absorb the amount of funding deployed by BGFZ in Zambia. In order to enable Liberian companies to participate in the programme, there might be a need to set a lower ticket size. Capacity of local companies needs to be built to enable them to participate in the programme. Rigid international procurement processes usually implemented by programmes like BGFA, coupled with the lack of access to finance, would disqualify the participation of most local businesses in the tender. Local companies could consider forming joint ventures to increase their capacity to participate in the programme. Local knowledge and networks will be key to ensure a successful implementation of the programme.
- A high potential for growth exists for solar systems in peri-urban and rural areas, in particular in the following segments: home and street lighting, phone charging, powering of home appliance (e.g. radio, television), productive use in agriculture and fishery (e.g. cooling facilities, processing equipment etc.).
- Several initiatives have focused on training and supporting women in the renewable energy sector. Women can be trained in sales and installation of SHS, especially in rural areas where the lack of qualified professionals is a barrier to the deployment of the technology. As beneficiaries, women benefit more than men from access to clean energy, however culturally, decision-making is mostly done by men (women do play an active role in guiding those decisions). Participants mentioned the existence of cultural barriers to the deployment of clean energy services, included some local beliefs, rituals and societal norms.
- Payment collection is more reliable and efficient when done via PAYG systems. However, incomplete and unreliable telecommunication network coverage, particularly in rural areas, is a challenge for a systematic use of PAYG solutions. PAYG system setup and

operations can be used with the two main telecommunication operators (Lonestar/MTN and Orange Liberia).

KEY RECOMMENDATIONS FOR BGFA

- Support local credit unions and Village Savings and Loans Associations (VSLA) to organise payment systems, especially in the areas where there is limited network coverage.
- Reduce retail prices to ensure affordability of energy products and/or subsidise poor communities.
- Promote digital payment solutions, such as PAYG, incorporating flexible payment plans that can span over 12 months.
- Focus on energy access solutions that spur economic activities, for example, agriculture.
- Train local staff, especially women, to provide maintenance and support.
- Encourage joint-venture and cooperative business arrangements to promote an effective local participation in the programme.

4 CONCLUSIONS AND RECOMMENDATIONS

The private sector stakeholders' consultative workshop was very interactive and participatory. The inputs and recommendations gathered from participants during the workshop will feed into the design of the BGFA programme for Liberia. Overall, several key lessons can be drawn from the workshop:

- The government of Liberia is highly welcoming towards the BGFA programme and ready to support its implementation as an opportunity to increase energy access in the country. This message was conveyed by both MME and RREA. It is hoped that the BGFA data collection and analysis tool, EDISON, will improve the understanding of the Liberian market, inform market projections, and consequently lead to a more effective targeting of funding in the RE sector.
- Effective donor coordination is important for the sector. Many donor and development organisation are implementing projects in the RE space, and poor coordination has led to an overlap of projects and market distortion. An early implementation of the BGFZ taskforce approach, complementing the Rural Energy Working Group could be beneficial.
- The new regulatory body (LERC) is fully operational. However, several of the energy sector regulations are still in the development, review and/or validation stages. Alignment of the proposed regulations with market reality is ongoing. More public awareness and education on these regulations are required.
- Most local companies involved in off-grid renewable energy are at a very early stage of development, particularly compared to regional companies active in the space. Local SMEs are very receptive to the BGFA programme and its potential to develop and expand the RE market in Liberia. Their limited capacity and scale may not enable them to participate in the initial funding round of the BGFA programme, but their operational knowhow and experience of the local culture will be crucial to the achievement of national energy access targets. Local SMEs would mostly require some form of business

development support to improve their business planning, operations and management to possibly participate in future BGFA funding rounds.

- SHS and nano/mini-grids seem to be the most promising sub-sectors for the BGFA funding window. Financial incentives, particularly for mini-grid operators, will be needed to encourage the deployment of energy services in rural areas. Most projects currently concentrate in Montserrado county.
- While potential exists for biomass and bio-energy, their track-record in Liberia and commercial viability is still very limited. Targeted start-up and seed funding could help the emergence of the biomass and bio-energy sub-sector.
- Ability to pay is a major challenge, in particular in rural areas. Subsidises and other targeted mechanisms might be needed to foster rural community's energy access. Duty waivers on renewable energy products, for example, would significantly lower the retail price and contribute to greater affordability.
- Limited telecommunication coverage, limited road network, long rainy season (minimum 6 months) and lack of access to finance are some of the main challenges that should be considered in the design of the funding window for Liberia:
 - Incorporation of flexible payment terms using digital payment system such as PAYG for payment collection is possible but subject to network coverage and dependent on the density of the mobile money agent network.
 - In order to for private sector stakeholders to secure debt, donors are encouraged to support commercial banks in increasing lending to renewable energy investments.
- BGFA could support the implementation of a quality control system to reduce the proliferation of substandard products, which create price distortion in the market and damage the reputation of the solar technology in the short/medium term.
- Raising awareness of rural households around the potential of off-grid clean energy solutions is necessary to stimulate the uptake of products/services provided by private sector stakeholders, including BGFA awardees.
- The sector offers a significant opportunity to involve women in installing and maintaining RE systems.
- All stakeholders highlighted the need to launch BGFA in Liberia as quickly as possible.

Some of the recommendations made by the workshop participants fell outside the scope of the planned BGFA funding window. These recommendations will be considered by the BGFA team in the context of stakeholder coordination and engagement, specifically in the context of the Platform for Market Change.

In conclusion, BGFA is achieving good visibility and traction in Liberia, and has inspired a high level of anticipation in the market. The workshop was successful in bringing together key market players and other stakeholders and the discussions were useful in framing some of the challenges and opportunities for the design of the envisaged funding window. While it can be concluded that

the markets and local companies are still relatively immature and it will be challenging to scale quickly, there is nonetheless considerable potential as well as international interest in entering the market. The situation in Liberia bears many resemblances to the situation in Zambia before the launch of BGFZ which on the whole bodes well for the continued development of BGFA in the country.

BGFA is planning to release a request for proposals at the end of the second quarter 2020, and will share this news with all stakeholders who participated in the workshop and/or engaged with the team during subsequent B2B sessions.

If you would like us to keep you up to date with the latest BGFA developments, **including the release of the BGFA call for proposals**, please sign up to our mailing list here: <http://eepurl.com/gIMJcn>.

ANNEX 1: WORKSHOP AGENDA

**BEYOND THE GRID FUND FOR AFRICA
(BGFA) – LIBERIA**

Private Sector Stakeholder Consultation Workshop

Tuesday, 29th October 2019
Boulevard Palace Hotel, 13th Street, Monrovia, Liberia

Agenda

BEYOND THE GRID FUND FOR AFRICA (BGFA) – LIBERIA	
8:00 – 9:00	Breakfast and Registration
9:00 – 9:20	Welcome and Keynote Addresses <ul style="list-style-type: none"> - Elisabeth Hårleman, Head of Development Cooperation, Swedish Embassy, Liberia - H.E. Gesler E. Murray, Minister of Mines and Energy of Liberia
9:20 – 9:40	Overview of the Workshop Programme and Beyond the Grid Fund for Africa (BGFA) John Tkacik, Director of Energy Analytics, REEEP <ul style="list-style-type: none"> - The BGFA concept - Objectives of the workshop/ Expected outcomes - Lessons learned from private sector market creation in Zambia - Expanding the Beyond the Grid Fund to other countries - Timeline for Liberia - Q&A
9:40 – 9:50	Introduction of the participants
9:50 – 10:40	Setting the Scene <ul style="list-style-type: none"> - Off-grid initiatives (incl. REFUND) to accelerate rural electrification and defining expectations for the BGFA, Steven Payma, Business Development Officer, Rural and Renewable Energy Agency - Current and envisaged off-grid regulatory frameworks. Which delivery models will be available to the private sector? Augustus V. Goanue, Managing Director, Liberia Electricity Regulatory Commission - Q&A session

10:40 – 11:00	Coffee Break and Networking
11:15 – 11:35	<p>Introduction / Set-Up of Break-Out Sessions</p> <ul style="list-style-type: none"> - Main challenges and opportunities for the private sector, Royston S. Gbelia, President, Liberia Energy Access Practitioners Network <p>Introduction of discussion themes by the Beyond the Grid Fund for Africa Team: Wilson Idahor, Scoping Consultant for BGFA Liberia, REEEP</p> <ul style="list-style-type: none"> - Theme 1: Mini-grids: business models and financing. Implications for BGFA – John Tkacik - Theme 2: SHS and clean cooking solutions: business models and financing. Implications for BGFA – Peter Storey - Theme 3: Regulation & Public Sector Roles – Esméralda Sindou - Theme 4: Social & Development Issues – Wilson Idahor <p>Formation of 4 break away groups.</p>
11:35 – 13:00	<p>Break-Out Sessions</p> <p>Each theme is discussed by participants in small groups.</p>
13:00 – 14:00	Lunch and Networking
14:00 – 15:00	<p>Continuation of Break-Out Sessions</p> <ul style="list-style-type: none"> - Each theme is discussed by participants in small groups
15:00 – 16:15	<p>Report Back from Breakout Groups – Peter Storey, Director of Investment and Strategy BGFA, REEEP</p> <ul style="list-style-type: none"> - Each group reports back on its discussions, findings and recommendations in max. 10 minutes - General discussion / comments on each of the findings, key challenges and opportunities - Recommendations for the BGFA programme
16:15 – 16:30	<p>Conclusions and Next Steps</p> <p>John Tkacik, Director of Energy Analytics, REEEP</p>
16:30	End of Workshop

ANNEX 2: LIST OF ATTENDEES

#	Organisation	Number of participants
1	Africa Electric Engineering	1
2	Ashande Group	2
3	Bill Johnson Business Center	1
4	Bless Business	1
5	Bluelink	2
6	Dennis Electronic shop	1
7	Diaconia MDI	1
8	Easy solar	2
9	EcoBank Liberia	1
10	Ecopower	1
11	Elsie Investment Renewable Power Solution	1
12	EMAREJ Energy Ltd	1
13	Gbiyah Energy Solutions, Inc.	1
14	GIZ/EnDev	1
15	Global Group of Enterprises Ltd.	1
16	Go Solar Liberia	2
17	God's Favorite Business Center	1
18	God's Favour	1
19	Green Gold Liberia	3
20	Innova Liberia	1
21	JEP	1
22	Jungle Energy Power Inc.	2
23	LEG	1
24	Lib Solar	1
25	Liberia Eco-Supply VenturesInc.	1
26	Liberia Electric Vehicle & Clean Energy Project	1
27	Liberia Electricity Regulatory Commission	1
28	Liberia Energy Network	1
29	Liberia Engineering & Geo- Tech Consultant	2
30	Lifi LED Liberia Inc.	2
31	LoneStar/MTN (PAYG)	1
32	LYAED	1
33	Ma Bedee Enterprise-Buchanan	1
34	Mercy Corps	3
35	Millennium Challenge Account - Liberia	1
36	Ministry of Finance and Development Planning	1
37	Ministry of Mines and Energy	3
38	National Investment Commission	2
39	NEFCO	1
40	Oasis Africa Resources	2

#	Organisation	Number of participants
41	ONBD Group	1
42	Our Own Thing Business Center	1
43	REEEP	4
44	Rural and Renewable Energy Agency	4
45	S&B Fabrics and Store	1
46	SIDA / Embassy of Sweden	2
47	SJEDE Green Energy	1
48	SOLAR ADVANCE WORLD	1
49	Sun Star Green Eneegy	2
50	Tamma Corporation	2
51	Tony Blair Institute	1
53	Trust Savings Credit Union,Inc.	1
54	Unknown	1
55	Urgent Climate Action -Liberia	3
56	USAID/Liberia	1
57	We Care Solar INC	1
58	West Africa Renewable	1
59	Women Empowerment For Self Employment (WE4SELF)	1
60	Youth Coalition for Education in Liberia	1
	Total	85

ANNEX 3 - DISCUSSION GROUP QUESTIONS

THEME 1: MINI-GRIDS, BUSINESS MODELS AND FINANCING REQUIREMENTS. IMPLICATIONS FOR BGFA

Business Models - what are the business models already operating in the market and where are the opportunities for private sector?

- How are mini- and micro grids being deployed and financed? Where are the opportunities? What are the revenue streams and how are they being collected?
- What levels of connection / qualities of service are being provided?
- What are the affordability levels and what are the price points?
- What are the opportunities for productive use?
- What are the key barriers which prevent customers subscribing for an energy service / utility approach?
- How is after sales service and quality being assured?
- Where are the centres of opportunity? Are there different geographies for different models?
- What is the potential for scale? What are the barriers for scale?
- How can incentives be structured to help companies to get to scale?
- What is the potential total addressable market for BGFA and what is the realistic share over the commitment period? (i.e. how many connections should we be aiming for in BF?).

Investment & Financing: what is procured and how are the number and quality of connections monitored?

- What are the financial constraints on business model deployment / rollout?
- Which sources of financing are most required: equity, long term debt, working capital, equipment finance, customer finance?
- What payment and collection mechanisms are used? How can these be improved?
- What would an ideal incentive structure look like? How can incentive models be structured and deployed??
- Pre-financed RBF or Smart subsidy? Are ESPs able to mobilise capital quickly in the context of a Smart Subsidy? Is a pre-financed RBF required (pre-financed activities/milestone/results-based payments) or some combination of the two?
- What is the right incentive level and how should it be targeted and deployed?
- What milestones and KPIs can be tracked? How can quality be calibrated / measured? How should the mechanism be monitored, and tracked? Which KPIs (technical, financial, environmental / social)?
- What is the RBF link to value for money and quality of service / connection (kWh / connection tiers / equipment standards / appliances / availability)?
- What are the required subsidy levels to enable sustainable operations? When can operations be expected to reach breakeven?
- How can subsidies / grants be deployed to avoid market distortion?

THEME 2: SHS AND CLEAN COOKING SOLUTIONS: BUSINESS MODELS AND FINANCING. IMPLICATIONS FOR BGFA

Business Models - what are the business models already operating in the market and where are the opportunities for private sector?

- How are SHS being deployed and financed? Where are the opportunities? What are the revenue streams and how are they being collected?
- What is the experience of SHS providers? What systems are being sold? How are they being sold and supported? What is the revenue model?
- What levels of connection / qualities of service are being provided?
- What are the affordability levels and what are the price points?
- What other off-grid, energy service business models / technology solutions are being deployed?
- What are the opportunities for productive use?
- What are the key barriers which prevent customers subscribing for an energy service / utility approach?
- What are the distribution networks? How is after sales service and quality being assured?
- Where are the centres of opportunity? Are there different geographies for different models?
- What is the potential for scale? What are the barriers for scale?
- How can incentives be structured to help companies to get to scale?

What is the potential total addressable market for BGFA and what is the realistic share over the commitment period? (ie how many connections should we be aiming for in BF?).

Investment & Financing: what is procured and how are the number and quality of connections monitored?

- What are the financial constraints on business model deployment / rollout?
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- What is the RBF link to value for money and quality of service / connection (KwHrs / connection tiers / equipment standards / appliances / availability)?
- What are the required subsidy levels to enable sustainable operations? When can operations be expected to reach breakeven?
- How can subsidies / grants be deployed to avoid market distortion?

THEME 3: REGULATION & THE ROLE OF THE PUBLIC SECTOR ROLES

- What regulations are in place that provide opportunities for the private sector to roll out their business models?
- What are specific regulatory barriers and structural challenges in the market?
- What are the policy targets of the Liberian government for the off-grid space in terms of technologies and sectors (solar / mini-grids / SHS / bioenergy / biogas)?
- What is the private sector / the public sector doing to raise awareness for private sector energy solutions?
- How could BGFA contribute to awareness raising and capacity building?
- What ancillary support (other than funding) would be necessary / useful in promoting private sector off-grid solutions?
- What are the potential roles for the public sector in coordinating and planning the rollout of private sector business models and ESP energy service solutions for off-grid rural electrification?
- How can the private sector ESP activities be effectively coordinated (vis a vis grid extension), monitored and verified?

THEME 4: SOCIAL & DEVELOPMENT ISSUES

- How can local companies be involved and incentivised by BGFA? What is the opportunity for international entrants to Liberia to work with local service providers? How can the inclusion of local service providers be specifically incentivized by BGFA?
- What customer segments constitute a specific opportunity for ESPs (urban, rural, peri-urban / men and women)?
- What are promising ESP product and service offerings? How do they meet the needs of women and men?
- Are there any gender specific RE / off-grid interventions in Liberia?
- What are opportunities for women's employment across the SHS value chain? Are there significant business models / opportunities which focus and meet the needs of women and children and which are structured in such a way as to ensure the active participation of women in the management and implementation / rollout of the model?
- What is the opportunity for ESPs to enter remote rural areas? What are barriers, challenges and risks in servicing customers in remote areas?
- How would ESPs define and approach the affordability / profitability gap?
- What are the ESPs' strategies to manage risks related to servicing customers with low purchasing power/ability to pay?
- What are incentive mechanisms that could help companies target remote rural areas and/or customer with low ability to pay? Who should be incentivised? How should the money flow through the program?
- How can funding be targeted to ensure that it doesn't distort the market especially vis a vis existing players and new entrants?

ANNEX 4 - PRESENTATIONS

Accessible on the Beyond the Grid Fund for Africa website:

<https://beyondthegrid.africa/news/outcomes-stakeholder-workshop-monrovia/>