

Mano River Sub-Regional Off-Grid Energy **Investment Roadmap**

*August 2017
Freetown, Sierra Leone*



ROADMAP: CONTEXT AND OBJECTIVES

Context: Energy access in the Mano River Union

- Energy access is low in Guinea (26%), Sierra Leone (**12%**) and Liberia (**10%**). The national grid has not reached most of the population, and **governments are constrained** in their ability to provide off-grid electricity solutions.
- Many businesses and households are using batteries and diesel generators to meet their energy needs. These customers are willing to pay for power – and a **growing private sector** is eager to offer them off-grid solar photovoltaic (PV) solutions.
- This **convergence of government objectives** (provide electricity to the population) **and commercial opportunities** (local businesses can deliver a range of solar PV electricity products and services) presents an exciting opportunity for investment.

Rationale: A sub-regional approach

- **Individually**, these countries present a **challenging business and investment environment** in which to operate – all relatively small markets with different energy policy and investment frameworks.
- As members of the Mano River Union (MRU) with similar energy access situations, these three countries could benefit from an aggregated approach – including **alignment and cooperation in improving key facets of the ‘enabling environment’** in which energy businesses operate.
- A sub-regional approach **has the potential to accelerate investment** in the MRU sub-region toward achievement of national energy access objectives and is an **important step to stimulating commercial activity** in the sector.

Objective: MRU sub-regional off-grid energy investment roadmap

- This Roadmap identifies **key barriers, opportunities** and **concrete near-term actions** that would improve the enabling environment for investment in off-grid energy at the national level and also through an integrated sub-regional approach.

ROADMAP: NATIONAL AND SUB-REGIONAL PRIORITIES

POLICY AND REGULATORY FRAMEWORK

Context Overview

- ✓ Governments have different approaches to national electrification. They may focus on grid extension or consider a mix of grid & off-grid solutions. They may see electricity provision as the role and expense of government or show varying degrees of willingness to involve the private sector.
- ✓ A clear government strategy creates predictability around which (and how many) customers can be a potential market for commercial off-grid products & services.
- ✓ MRU governments currently have a range of approaches – including a focus on grid extension in Guinea and a heavily subsidised off-grid solar sector in Liberia – which create uncertainty for investors.

Roadmap

 Sierra Leone	 Liberia	 Guinea
<p>Develop a national electrification plan that includes a clear pathway for the private sector to play a role in delivering off-grid energy solutions.</p> <p>Finalise mini-grid regulations that:</p> <ul style="list-style-type: none"> • Allow simplified licensing procedures, land permitting, asset depreciation • Describe what will happen to isolated mini-grids should the national grid arrive • Create, through subsidy or cost reflective tariff-setting, mechanisms for private mini-grid developers to recover investments. 	<p>Develop mini-grid regulations that:</p> <ul style="list-style-type: none"> • Allow simplified licensing procedures, land permitting, asset depreciation • Describe what will happen to isolated mini-grids should the national grid arrive • Create, through subsidy or cost reflective tariff-setting, mechanisms for private mini-grid developers to recover investments. <p>Clarify the duration of and process for phasing out standalone solar PV import subsidies (RREA).</p>	<p>Publish a national electrification plan that:</p> <ul style="list-style-type: none"> • Acknowledges the role for private and off-grid energy delivery in meeting energy access targets in the near to medium term • Outlines the concession zones currently planned for private electricity supply • Contains information on the geographic areas where government will prioritise grid expansion in the next 2, 5 and 10 years • Indicates standardised procedures for getting approval to build, own & operate mini-grids

Sub-regional training & technical assistance to local Customs officials, Standards Bureaus, and Revenue Authorities on implementation of quality standards and import duty waivers.

Items in **blue** have particular **sub-regional relevance**



“The role of RREA is to create a facilitative environment for private sector operation.” **Stephen Potter, Liberia RREA**

ROADMAP: NATIONAL AND SUB-REGIONAL PRIORITIES

FISCAL INCENTIVES

Context Overview

- ✓ Businesses and investors need to recover their investment (unlike government!). In early stage off-grid energy markets such as in the MRU, high and/or unpredictable set-up and operational costs are weighing heavily on businesses.
- ✓ Sierra Leone has just implemented an import duty and GST waiver for solar products; Liberia and Guinea do not have an official waiver, but select companies receive exemptions (discretionary). In order for goods to move duty free across the MRU free trade zone, products must meet local assembly or production requirements. Definitions of what constitutes local assembly for off-grid sector is presently undefined.

Roadmap



Sierra Leone



Liberia



Guinea

Streamline implementation of import duties and goods and services tax (GST - sales tax) on qualified, certified products.

Streamline fast-track import processes by operationalizing the 'green channel' for certified, quality solar products.

Create and publicize a process by which non-RREA partner companies may access import duty and GST waivers, warehousing and distribution support, and/or marketing opportunities.

Design and enact an import duty and GST waiver for eligible solar PV and balance of system products. Align to existing Sierra Leone waiver and create/make public a predictable timeframe duration of the waiver.

Define, create and implement a 'fast-track'/'green' lane for expediting solar PV and balance of system imports through Customs.

Subsidize eligible GMG companies to cover specific costs (i.e., feasibility, capital expenditures, etc). Tie eligibility to energy access and quality objectives.

Level the playing field between diesel and solar (as competing off-grid electrification options) by gradually phasing out diesel subsidies.

Align import duty waivers across MRU member states. Develop guidelines for duty-free, cross-border movement of solar and balance of system products not assembled or manufactured in the MRU. Coordinate the establishment of an MRU Energy Technical Committee to tackle aforementioned issues.

Develop a guarantee mechanism to (a) protect companies operating in the MRU against foreign exchange fluctuations and/or (b) enable companies operating in the MRU to offer credit within the supply chain.

ROADMAP: NATIONAL AND SUB-REGIONAL PRIORITIES

FINANCIAL SERVICES AND COMPANY PERFORMANCE – OFF-GRID ENERGY BUSINESSES

Context Overview

- ✓ Most businesses in the renewable energy sector in the three MRU countries are small, poorly capitalized, and limited in capacity. However, in order to grow, companies need both import large volumes of product while managing long-term customer credit. In other words, companies require significant working capital – and patient capital – in order to grow. Unfortunately, financing options are also quite limited for businesses.
 - Hard currency loans are challenged by significant inflation.
 - Local currency loans from Sierra Leonean commercial banks, especially for SGBs, often comes at high interest rates and for just short periods. Banks require significant collateral. They also require strong and consistent performance track record over several years, making it difficult for start-ups to qualify for loans
 - Access to finance for business set-up, operations and growth has been difficult for companies based in the MRU. Investors are reluctant to take chances on smaller markets characterised, in part, by policy uncertainty, currency fluctuations, low-skill base and high cost of doing business.
 - International solar suppliers are unwilling to provide trade financing. At best, they may offer a percentage payment on an order and a final payment on arrival in port.
- ✓ For many companies, the application and due diligence requirements for securing financing, loan or equity funds are steep and prohibitive. Without capital, it is challenging to test business models, build distribution networks, market products, recruit and train staff, or offer credit to their customers.

Roadmap



Sierra Leone



Liberia



Guinea

- ✓ Equity, venture debt, or working capital and credit enhancement facilities that account for low absorption capacity, longer payback periods, untested business models and offer technical assistance to recipient companies. May be results-based to incentivize performance on achieving energy access targets. Consider both corporate and project finance, depending on company needs and structures.
- ✓ **Develop shared sub-regional / regional financing facilities to support early-stage growth and market entry. Consider an MRU platform that aggregates funders and applications, pools revolving funds, standardises and reduces due diligence and reporting burdens. Implement a scalable, competitive tender process for minigrids to drive down cost and accelerate innovation for a pipeline of projects**
- ✓ **Design advisory facilities toward private sector strengthening to support local market actors to design, trial and scale innovative and cost-effective route-to-market strategies; undertake targeted marketing and sales strategies to increase brand and product awareness, and accelerate demand from and sales to low-income consumers; and strengthen business and financial management practices that underpin growth**
- ✓ Facilitate local currency loans through on-lending to local banks.
- ✓ Look at potential to harness foreign remittances through solar PV loan products with local banking institutions.
- ✓ Streamline / standardise investor reporting procedures to enable consistency and reduce burden.

ROADMAP: NATIONAL AND SUB-REGIONAL PRIORITIES

AFFORDABILITY

Context Overview

- ✓ MRU countries have very low GDP and electricity use per capita. Purchasing power is low, and the majority of the population earn a living through informal and sometimes seasonal work – making monthly payments potentially difficult.

Roadmap



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Liberia



Guinea

- Support pay-as-you-go customer financing through: 1. improved access to debt financing for companies; 2. credit enhancement measures (i.e., collateral guarantees, foreign exchange risk hedging etc.); 3. market-specific GMG tariff structuring.
- Facilitate consumer access to local micro-financing.

QUALITY STANDARDS

Context Overview

- ✓ Off-grid energy supply in the MRU is dominated by diesel micro-grids, battery-operated torches and non-branded solar equipment. Currently, the non-branded solar PV market (“grey market”) is likely to be many times larger than the quality solar market – which means consumers are widely aware of solar, but may not consider it a worthwhile investment.
- ✓ Quality solar can compete on its own merits against diesel and battery power – but it is very difficult to compete against lower-priced and lower-quality product.
- ✓ Quality standards for import of solar PV are available through ECREEE, but are difficult to implement and enforce. If one MRU country applies these standards but inferior product is still entering via its MRU neighbours, the market is still affected.

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Liberia



Guinea

- Adopt & implement Lighting Global and ECOWAS IEC standards (ports + borders). Align across MRU members.
- Tie tax waivers and marketing support to quality.

Items in **blue** have particular **sub-regional relevance**

ROADMAP: NATIONAL AND SUB-REGIONAL PRIORITIES

CONSUMER AWARENESS AND MARKETING SECTOR

Context Overview

- ✓ Households and businesses in the MRU sub-region are widely aware of solar PV, though less so in more remote rural areas. Yet, consumer awareness of the benefits of uptake and the availability of solar PV systems is still low. Moreover, MRU markets are filled with poor or unknown quality solar products imported by many local retailers. The persistence of these sub-standard products on the local market often undermines consumer confidence in solar products more broadly and results in ‘market spoilage’.
- ✓ Lack of consumer awareness has two related impacts:
 - It means the primary purchasing factor remains price – which favours and reinforces the lower-quality market and the consumer disappointments that accompany this market.
 - It depresses the demand for higher quality products, which might still be deemed unaffordable by some consumers, but might be preferred by many. Companies offering high quality products are therefore constrained by an uneducated market.

Roadmap



Sierra Leone



Liberia



Guinea

Inform local company investments in targeted marketing and sales strategies to increase brand and product awareness, and accelerate demand from and sales to low-income consumers including with best practice sharing and advisory support.

Support strengthening of business support service providers such as marketing firms and foster mutually-beneficial partnerships between marketing service providers and solar companies. Partnerships poised to support local firms in: designing tailored strategies to reach base-of-pyramid consumers; offer data analytics to improve firms’ understanding of marketing return on investment; and calibrate marketing firms’ service offerings to fit budgets of small and growing businesses

Tie marketing support to quality products.

Develop consumer awareness campaign to foster consumer buy-in to introduce quality solar products.

ROADMAP: NATIONAL AND SUB-REGIONAL PRIORITIES

MARKET DATA

Context Overview

- ✓ Markets thrive on information. Alongside limited capacity, the private sector is also plagued by a dearth of timely and relevant market information to guide targeted business operations and investments. Data gaps and asymmetries in the MRU are huge challenges for investment and business growth – they create uncertainty and add costs and time to feasibility and business set-up activities.
- ✓ “Data” gaps in all 3 countries include both quantitative (e.g. tax and tariff rates; consumer demographics; consumer energy expenditures – whether on or off-grid – and willingness to pay for power) and qualitative (e.g. logistics of moving goods and people within and between MRU countries; procedures for registering a business and complying with legal obligations; avenues for accessing financing).

Roadmap



Sierra Leone



Liberia



Guinea

- Build & expand on existing platforms that support collection and mapping of renewables sales and installations and foster collaboration, information sharing, and network building – e.g., Energising Development: Off-grid Tracking Portal: Liberia - www.renewables-liberia.info; Sierra Leone (in progress) - www.renewables-salome.info
- Create website for publicizing MRU off-grid energy and investment information (i.e., legal framework and local lawyers, local and international financing options, logistics costs and procedures, etc.) to companies and investors.
- Undertake studies to include: (1) comprehensive market baseline survey (pico/SHS, captive, GMG); (2) baseline and tracking of social, economic and environmental indicators to inform sector benefits (i.e., job creation, commercial sector and industry development potential etc.) (3) remittance potential in the MRU; (4) economics of duty/tax waivers vs. electrification benefits in MRU.
- Share case studies & best practices within MRU and ECOWAS (e.g. solar PV tax exemption process in Sierra Leone; setting up & activities of LEAP, REASL; renewable energy equipment tax exemptions in Mali, Nigeria; private GMG concessions in Senegal, Mali).

ROADMAP: NATIONAL AND SUB-REGIONAL PRIORITIES

BUSINESS ENABLING ENVIRONMENT

Context Overview

- ✓ It is critically important that the over-arching context in which a commercial off-grid energy investor operates is conducive to doing business. A range of challenges face the MRU in this regard – including the need for clarity and predictability around how to set up and operate a business; challenges of moving money, people and goods within each country and across borders; and more.
- ✓ Emerging renewable energy private sector trade and industry association have the potential to give voice to businesses in an emerging sector with support toward continued professionalization and ongoing positioning to demonstrate value and maintain influence in the sector. Advanced telecommunications, including mobile and payment infrastructure, were critical to the growth of solar markets in other regions. Mobile payment infrastructure enables access to pay-as-you-go (PAYGO) services and payment platforms that improve affordability for quality, solar products at scale. Business support functions can further support improved business performance and company growth if tailored to fit the needs and budgets of small and growing businesses

Roadmap

 Sierra Leone	 Liberia	 Guinea
Support toward staffing REASL Secretariat with a suitable Executive Director to execute on Strategic Goals and operationalize REASL business plan.	Ongoing LEAP secretariat & member support.	Assessment of whether a Renewable Energy or solar sellers’ association may be suitable considering context.
<p style="text-align: center;">Finalize PPP and investor protection regulations.</p> <ul style="list-style-type: none"> • Harmonize and publish national ‘rules of the road’ to reduce feasibility and due diligence costs and time. Establish, clarify and publicize available national arbitration and contract dispute mechanisms; rules regarding repatriation of profits; and other relevant reassurances for businesses and investors. Share regulatory, business development, investment tools and resources and best practices between MRU off-grid energy companies / industry associations, government departments, investment promotion agencies, PPP units, et.c – Starting toolkit can include UNOPS / NRECA mini-grid regulations; UNOPS GIS tool; REASL organizational development toolkit; Liberia concession agreement; Acumen Investment Term Sheets. • Support development and strengthening of training institutes and private training services providers in promotion, implementation, management, operation and maintenance for PV sellers and installers. Publicise / facilitate access for MRU stakeholders to ECOWAS RE entrepreneurship support and regional PV installers certification. • Technical assistance to MRU Secretariat to lead, convene, and facilitate, alongside partners, the ongoing development of the MRU off-grid energy investment roadmap starting with tackling policy priority issues bearing relevance at a sub-regional level including through the establishment of a Technical Committee or Working Group. • Strengthen and foster linkages between renewable energy companies and business support service providers that support sector growth. Showcase opportunities and entry-points for collaboration between mobile money operators and solar companies building on regional and global best practice learnings. Provide guidance to solar businesses on consumer financing structures/mechanisms for low income consumers, particularly through PAYG and mobile mechanisms. 		

ROADMAP: IMMEDIATE PRIORITIES FOR SUB-REGIONAL ACTION

Priority Actions	Recommended Lead	Support
<p>✓ Create a Task Force / Technical Working Group to drive forward the MRU off-grid energy investment roadmap</p> <ul style="list-style-type: none"> - Designate “champions” to take specific actions forward - Designate national focal points to facilitate information sharing and communication (best practices, meetings, document templates, market data) - Set date, location and agenda for follow-up meeting - Use and empower existing platforms (e.g. MRU Secretariat, industry organisations, ECREEE) 	<p>Lead: AGER / RREA / MoESL</p> <p>Key inputs: MRU Secretariat; REASL</p>	<ul style="list-style-type: none"> ✓ TBI ✓ Rocky Mountain Institute ✓ ECREEE ✓ DfID ✓ AfDB
<p>✓ Tackle the following policy areas with sub-regional relevance as first order of business</p> <ul style="list-style-type: none"> - Accelerating investment through harmonization of import duty waivers for quality, certified products; - Addressing market spoilage through harmonization of standards; - Streamlining mini-grid licensing procedures; - Harmonizing definition for off-grid and determining parameters of regulation of the off-grid sector. 	<p>Lead: AGER / RREA / MoESL</p> <p>Key inputs: REASL / LEAP</p>	<ul style="list-style-type: none"> ✓ GIZ EnDev ✓ World Bank / Lighting Africa ✓ GOGLA 
<p>✓ Collect and share market data</p> <ul style="list-style-type: none"> - Website to publicize MRU off-grid and investment process data to companies & investors - Comprehensive off-grid baseline survey 	<p>Lead: REASL / LEAP / MRU Secretariat</p> <p>Key inputs: GIZ Endeavor</p>	

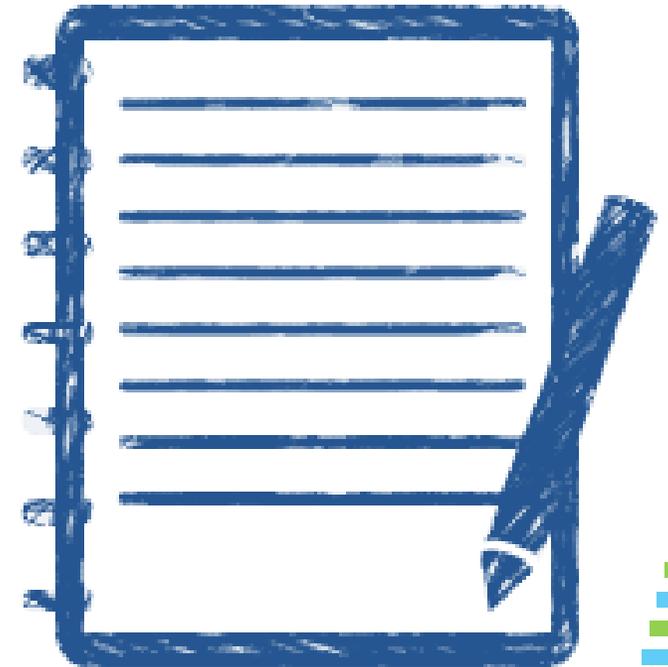
ROADMAP: SUMMARY - ELEMENTS OF THE IDEAL ENABLING ENVIRONMENT

Category	Pico (Non durable CGs) & SHS (Durable CGs)	Captive Power (Business equipment)	GMG (Energy infrastructure)
Policy & regulation	<u>Recognize role for “off-grid” products / services in meeting energy access targets. Recognize / define role for private sector and provide a predictable electrification plan.</u> (Energy Policy, Rural Electrification Plan with clear grid expansion information, Treasury budget allocation)		
			Simplify licensing rules. Allow cost-reflective consumer tariff.
Fiscal incentives	<u>Waive import duty / VAT. Train customs officials so to minimise costly delays on import.</u> Provide guarantees to minimize forex and credit risk.		
			Allow asset depreciation, facilitate land permits
Financial Services	<u>Grant, low-interest debt or equity investment for inventory, product distribution, human resources. Local currency loans.</u>		<u>Subsidize capex or connections</u>
Affordability	Facilitate development & piloting of micro-loan or PAYG products (may include banking or telecom sector reform).	Support local banks to offer loans	<u>Subsidize connection fees +/- or allow flexible tariff structuring</u>
Quality standards	<u>Adopt & implement ECOWAS standards (ports + borders). Tie tax waivers and marketing support to quality. Train customs officials so to minimize costly delays on import.</u>		Develop & enforce GMG safety + performance standards
Consumer awareness	<u>National marketing campaigns</u> to educate consumers on how to recognize quality; what PV can/can't do; where to buy; who can install or repair; etc.		National level n/a. Community level extremely important.
Capacity (technical & organizational)	<u>Basic technical training to sell, install + repair</u>	<u>Advanced technical training to sell, design, install + repair</u>	<u>Specialized technical training to build, operate + manage</u>
	<u>Organizational capacity for energy companies (finance, accounts, marketing, management, grant-writing, etc.)</u> <u>Training to local financial institutions, revenue authority, customs, lawmakers, and others on off-grid energy.</u>		
Market data	<u>Collect and make available data on current market</u> penetration, consumer WTP/CTP, financing options, who's who, operational logistics, overall business environment		<u>Support site identification</u> , consumer WTP/CTP info, resource availability, pilot sites, etc.
Overall business & investment environment	Build local non-energy skills & labor pool. <u>Establish risk mitigation mechanisms for forex losses, political instability, payment default.</u> <u>Streamline rules & procedures for setting up a business.</u> Ensure contract enforcement & clarify investor rights. Build the consumer financing environment including MFIs & mobile money operators (telecoms). Minimize logistics costs associated with movement of goods, people, communications & money.		

Items in **blue** have particular **sub-regional relevance**

ROADMAP: BEST PRACTICES

- ✓ Prioritize ‘carrot’ (incentive) over ‘stick’ (law) where enforcing rules is labor-intensive or costly, to **minimize burden on government**
 - Focus on **building consumer demand** for quality energy products and services
 - **Empower industry associations** to act on behalf of their members
- ✓ Take steps to ‘**level the playing field**’ between quality solar and low-quality/no-brand; and between solar/RE and diesel power.
- ✓ **Avoid market distortion or disruption** through *short-term* subsidies or giveaways that create unrealistic consumer expectations on price
- ✓ Create a **predictable, understandable policy environment** so companies and investors can make long-term plans
- ✓ Recognize the **role of the “grey market”** (non-branded product).
- ✓ **Pay as You Go isn’t one-size-fits-all**. There are a range of options along a spectrum of ownership and service.
- ✓ Remember the **urban and peri-urban consumers**: un- & under-electrified, looking for reliable power, energy autonomy, or grid backup → likely to be a high-WTP group.
- ✓ **Make information available** to companies and investors – reduces their costs and time.
- ✓ **Simplify and harmonise** the rules where possible.
- ✓ **Consumer data** is essential – it allows rapid adaptation of your business model.
- ✓ Look to **partner with local companies** with strengths that fill your gaps.



ROADMAP: STAKEHOLDERS CONSULTED

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Policy & Regulation

- [Mini-grid Policy Toolkit](#)
- [Off-grid Solar Policy](#) and [national case studies](#) (Practical Action / ODI)
- Energy Access Redefined: the [Multi-tier Framework](#) (World Bank)

Green Mini-Grid Development

- [GMG Help Desk](#) (SE4ALL)
- [GMG SE4ALL High Impact Opportunity](#) – resources for developers

Consumer Data Collection & Investor Reporting

- [Acumen's Lean Data platform](#)
- [GOGLA KPIs for off-grid solar PAYG](#)

Energy Access Organisations

- [Energy Access Practitioner's Network](#) (SE4ALL)
- [Global Off-grid Lighting Association](#) (GOGLA)
- [Lighting Africa](#) (World Bank / IFC)





ALBA TOPULLI,
SIERRA LEONE OPPORTUNITIES FOR BUSINESS ACTION



MARK HANKINS &
KARIN SOSIS
AFRICAN SOLAR DESIGNS

