

The Market Landscape for Decentralized Renewables in Uganda

By Noah Asinge (Information and Partnerships Officer)













About us

UNREEEA is an umbrella body of the private sector players in the renewable energy and energy efficiency sub-sectors of Uganda.

Its primary role is to avail a platform for consolidating the private sector leadership towards improving the business environment renewable energy and energy efficiency in Uganda.



About us Con't

We currently a network of six technology associations namely:

- -Uganda Solar Energy Association (USEA)
- Biomass Energy Efficient Technologies Association (BEETA)
- Energy Efficiency Association of Uganda (EEAU)
- Uganda National Biogas Alliance (UNBA)
- Hydro Power Association Of Uganda (HPAU)
- Wind Power Association of Uganda (WPAU)



About us Con't

UNREEEA operates through four action areas:

- 1. Market Development
- 2. Capacity Building
- 3. Advocacy and Lobbying
- 4. Standards and Quality Assurance

NB: We are also a member of the East African Renewable Energy Federation (EAREF) which is made up of TAREA, UNREEEA, KEREA, BUREA & EPD

Uganda's Renewable Energy Sector Resource Potential (MEMD 2015)

- Hydropower 2000MW, Mini-hydro 200MW
- Biomass (Co-generation) 1650MW
- Solar 5-6kwh/m2day
- Geothermal 450MW
- Wind average speed is 3m/s @ a height of 10m
 However there are some site the north-eastern part
 of Uganda with a higher speed with potential for big
 projects.



Sector Status of Trends

Resource Technology	Installed Generation
	capacity (MW)
Hydropower (large)	1413 (inclusive of Karuma and Isimba)
Hydropower (small)	96.6
Solar	40
Thermal power	100
Cogeneration	119.6
Total	1769.2



Sector Status of Trends

Sector Theme	Current Access Rate	Target	
Electricity Access	22% (Urban – 51% and Rural – 10.5%)	26% by 2022 (RESP 2013- 2022)	60% by 2040 (Vision 2040)
Renewable in the Energy Mix	89%	>95% by 2030 (SE4ALL A.A)	



Decentralized R.E Technology

Options: Minigrids

Hydropower based



Biomass gasification





Decentralized R.E Technology Options: Minigrids

Solar





Decentralized R.E Technology Options: Pico & Stand alone systems

Solar for lighting and production





NB: Solar as an R.E technology dorminates the off-grid market of Uganda applied mainly as **pico and stand alone** systems and of late mini-grids

Decentralized R.E Technology

Options: Pico & Stand alone systems

Current operational business models

- ☐ Pay As You Go is the leading business model with over 60% of the market share in Uganda.
- □ Post Paid Metering model where a solar company installs the system with a meter for free and the client only pays for he/she has used.

(Being piloted by Foundation for Rural Energy Services Ltd in Western Uganda.)

☐ Cash/Credit Sale model.



Policy Framework:

- ☐ The Government of Uganda through the Rural Electrification Agency (REA) under its Rural Electrification Master Plan (2013-2022) in particular, explicitly encourages the private sector to play a key role in the rural electrification
- □ Vision 2040 and the SE4All Action Agenda also have ambitious national electricity access targets.

Licensing Regime Requirements (Electricity Act 1997)

No.	Requirement	Issuing Authority
1.	Feasibility Study Permit (Hydropower projects)	Electricity Regulatory Authority
2.	Environmental Clearance Permit	National Environment Management Authority
3	- Surface Water/Abstraction- Construction Permit(Hydropower projects)	Directorate of Water Resources Management



4	Investment Licence (Foreign Companies)	Uganda Investment Authority
5	Licence(s) [Electricity Act 1999] OR License Exemption for project below 2 MW.	Electricity Regulatory Authority



Commonest Operator Models

Model	Description
Public utility	The utility owns and manages all aspects of the mini-grid. It is
model	financed by public funds and usually charges the uniform
	national tariff, which is cross subsidized by customers connected
	to the main grid.
Community	The community or a local NGO owns and manages the mini-grid
model	for the benefit of community members. These mini-grids are
	typically financed by grants and small in-kind contributions such
	as land, labour and materials. These mini-grids set tariffs to only
	cover operation and maintenance costs, retaining a small
	percentage to cover replacement parts.



Commonest Operator Models

Private model	A private investor builds, owns and operates the mini-grid.
	The funding usually comes from a mix of private sources and
	grants. The grants are important to cover the cost of the
	distribution network and a portion of the project development
	costs. They are also important to keep tariffs at an affordable
	lev el.
Hybrid (PPP)	This model combines the features of the other models, with
	different parties building, owning, and operating the
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Sector Barriers

- Inadequate market data and linkages.
- Limited technical capacity.
- Limited access to cheap finance.
- Lack of proven business models.
- Gaps in the policy and regulatory framework, specifically issues related to tariffs, licensing and arrival of the national grid.
- Poor quality products on the market (Standalone & Pico).
- Low market awareness (Stand-alone & Pico).



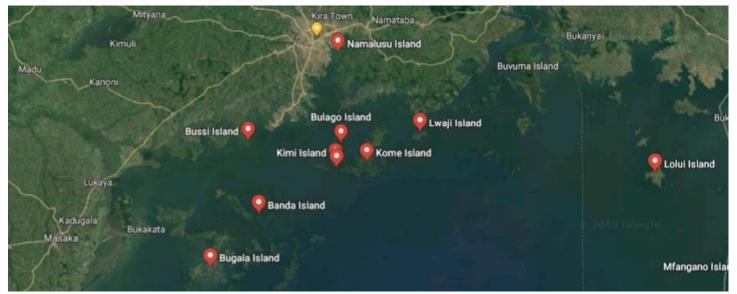
- ☐ Besides the majority (>78%) of the population lacking access to electricity, power for production (in agricultural value chain) is a virgin sector for application of decentralized renewable energy technologies.
- □ Rural Electrification Fund subsidies (distribution network and customer connections) to all rural electrification projects



- ☐ Introduction of the Competitive Licensing Model for R.E Mini-grids with a de-risking element through a GIZ "**Pro Mini-Grids NU**" project.
- ☐ Fiscal incentives to foster uptake of clean energy
- Investment capital allowances on machinery and plants
- Exemption of importation duty on PV system components



☐ There is a lot of still a lot of potential for Minigrids in the Island communities of Uganda (Lake Victoria)





GIS map with all operational and planned sites as well as the grid infrastructure in Uganda

https://uetcl.maps.arcgis.com/apps/View/index.html?appid=42680a3d3e0f4ce3ab408adf1a2c5c57



Danke Dir Thank You



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