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# **Innovation as the key enabler to power Africa**

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**Samuel MALINGA, UGANDA**

**T: +256783019557 E: [malingasamuel@gmail.com](mailto:malingasamuel@gmail.com)**

## Introduction



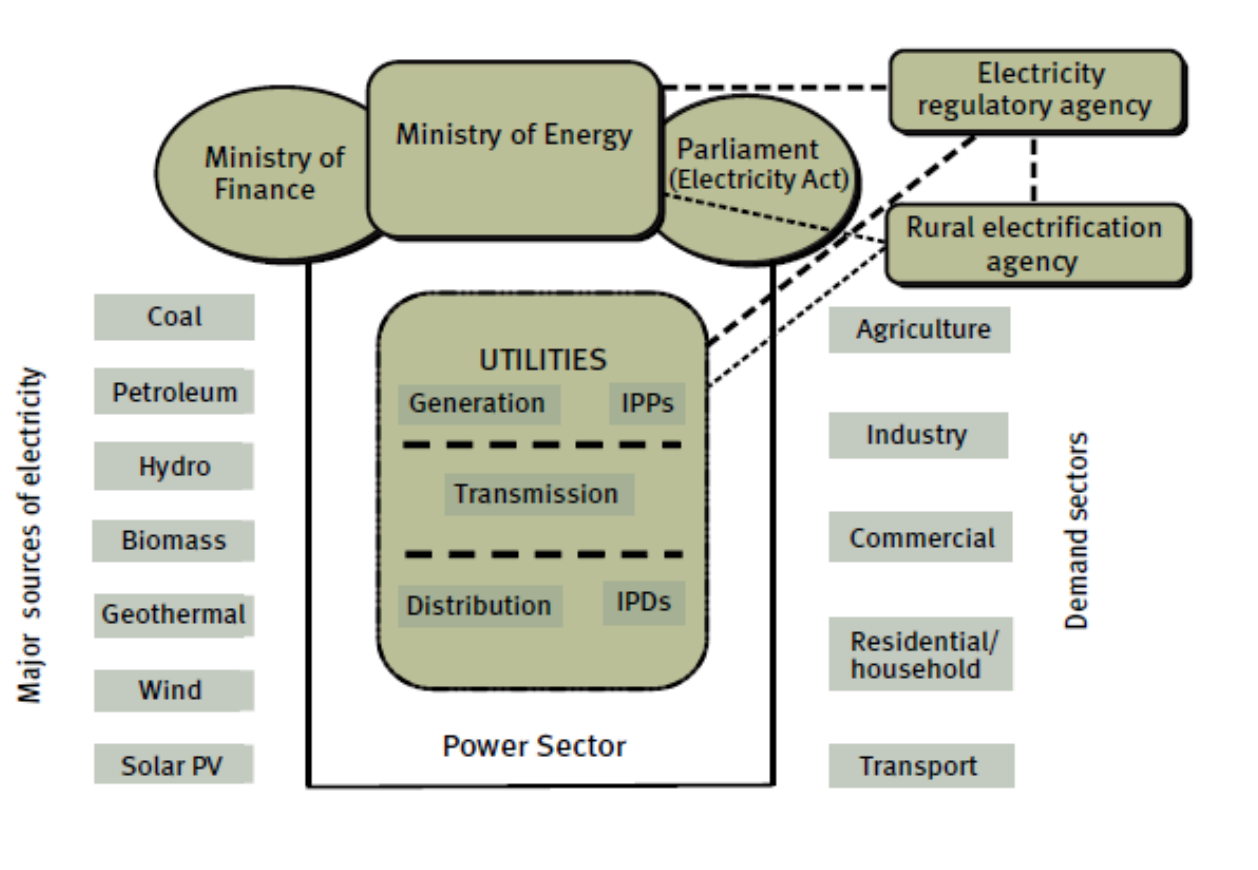
- Africa is endowed with Solar and wind resources
- Highest Solar radiation of over 220 kcal/cm<sup>2</sup> (IEA, 2014)
- 620M people lack access to electricity
- 15% of world's population but remains energy poor in world contributing about 2.4% of global GDP.

# Barriers to Renewable Energy Investment in Africa



- Poorly maintained power grids
- Limited access to capital.
- Grids don't have the capacity to handle the intermittent solar and wind power.
- Project development lead time of average 5-10 years.
- Government policies not favorable for renewable energy.

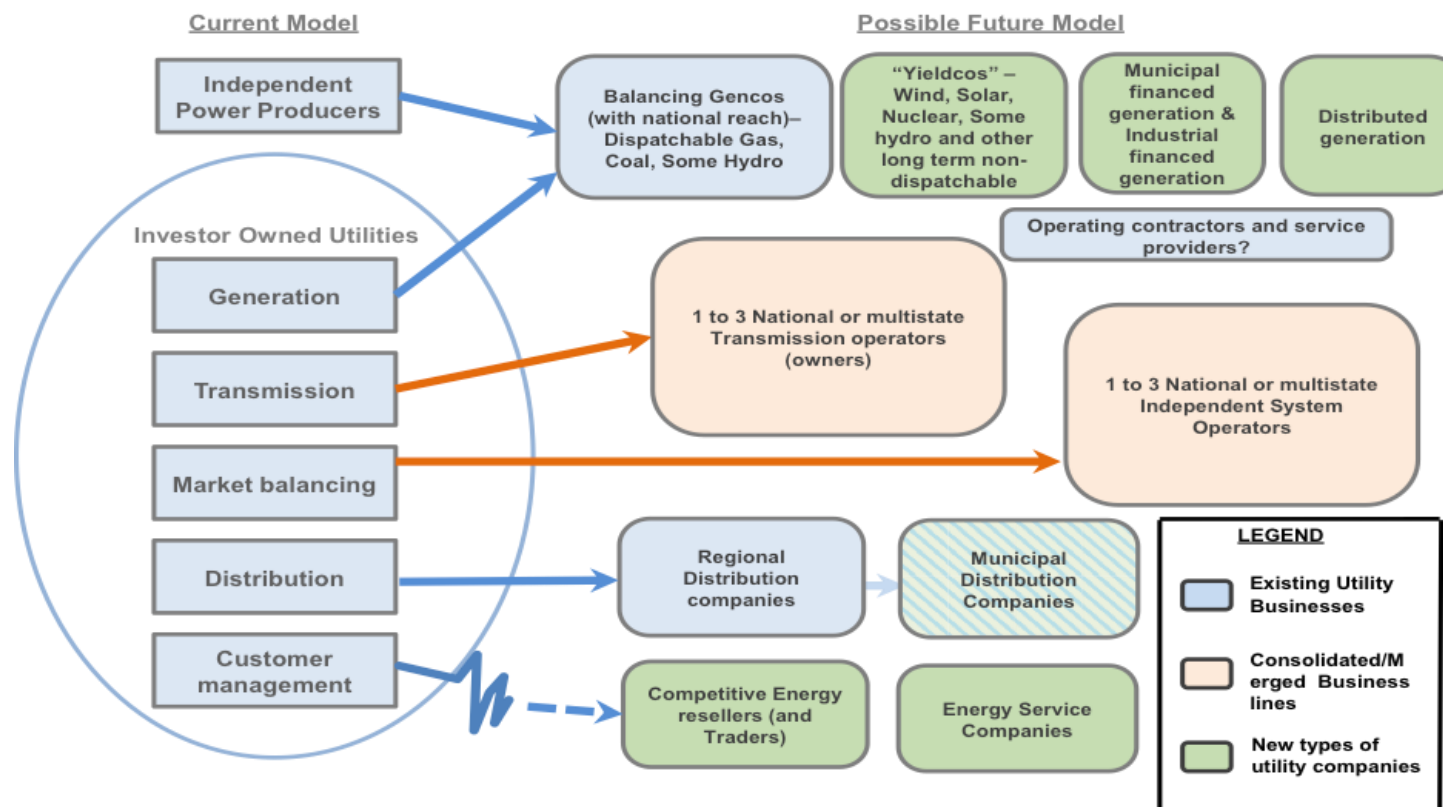
## Institutional structure of the power sector in Africa





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## Power Generation & Distribution in Africa



# Solar Photovoltaics (PV)

## Grid connected solar PV

### Classification;

- **Small:** Power from 1 to 10 kWp. Typical applications; Rooftops of private houses, institutional buildings, parking, camps, solar refrigerators.
- **Medium size:** Power from 10 kWp to some 100s of kWp. Typical applications; building integrated systems in facades.
- **Large size:** Power from 500 kWp to MWp range, centralised systems. These systems are normally installed on utility property.

# Application of RE in Africa





# Application of RE in Africa





# Wind Energy

- Low wind speeds prevail in many sub-Saharan countries, particularly in land locked countries.
- South Africa, North Africa and the Red Sea coast have some of the highest wind potential in the region.
- Average wind speeds of 7.2-9.7 m/s have been recorded around Cape Point in South Africa.

# Installation of Windmill in N.E Uganda



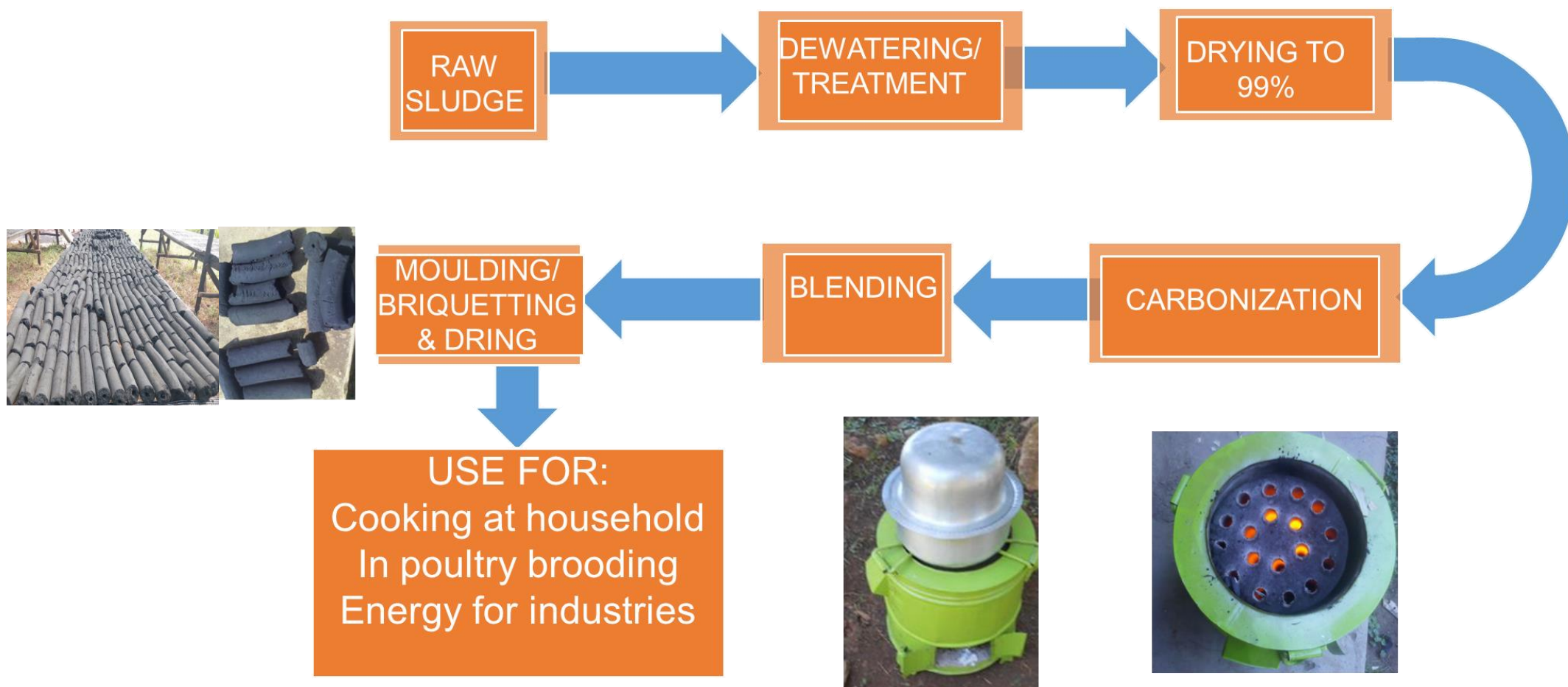


# Sanitation Project on Sludge Treatment





## Sludge to Briquettes for Heating



## TRAINING TEAMS OF MASONS & LOCAL LEADERS





# Conclusion

- There is a huge potential for renewable energy investment in the sub-Saharan Africa.
- Renewable energy remains resources in abundance.
- A number of governments have developed policies favorable for renewable energy investment.
- The efficiency of solar and wind energy technologies is improving through research and development.