Current and future role of Interconnected minigrids in Africa.

Policy & Regulatory Framework, an in-depth look at barriers and enablers of Integrated Minigrids in Africa.

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AMDA: Who we are

AMDA is an industry association of private sector mini grid developers and operators whose mission is to support businesses undertaking the challenging task of electrifying rural Africa.

- **Our Vision** Universal energy access by 2030 using least cost, fastest technologies

- **Our Mission** Help create an appropriate financing and policy environment for minigrid companies in Africa to radically scale energy access.

Today, AMDA represents over 34 private companies who are operating AMDA represents over 34 companies who are operating minigrids across 15 countries.
AMDA: What we do

- **Access to Finance:** We serve as the voice of the Minigrid development industry in Africa to promote growth and sustainable development.

- **Policy & Regulation:** We collaborate with industry, policy-makers, government authorities, and donors to advocate for optimal policies that will benefit the mini-grid sector and the people it serves.

- **Data & Research:** We provide a platform that enables transparency in industry performance through comprehensive market data and analytics in order to establish, evaluate and promote key financial, business and policy solutions to overcoming the major barriers to the sector growth.
AMDA’s Focus is Breaking Down Barriers

Our job is to make everyone else in the ecosystem more knowledgeable and effective.

Every element of AMDA’s work is focused on enabling others to do their work better, faster, and cheaper. From investors, minigrid companies and donors, to policymakers and their advisors.

Policy & Advocacy
- National advocacy via chapter coordinators
- Thought leadership: turning data and member experience into expert guidance
- Ensures learnings from early markets are applied to avoid pitfalls

Financing the Sector
- Designing / advising Universal Energy Facility
- Working to build out first DFI debt and guarantee facilities

Data & Research
- Annual sector benchmarking & insights
- Comparative costs of grid vs. mini-grid
- Sector role in community economic growth
Policy & Regulatory support required to support Interconnected Mini Grids

Current Status of policy & regulatory framework for interconnected minigrids

- Many countries in Africa do not have dedicated laws and regulations for private investment in mini-grids and in those that do, the rules are often complicated and unclear.

- Most African governments provide little information on grid expansion plans and very few have clear rules on how mini-grids will be integrated into the grid and how mini-grid owners will be compensated if the grid arrives.
### Barriers to Interconnection

1. **The regulation doesn’t exist**
2. **The Regulation lacks clarity on "who" in government is responsible for interconnecting and the process stalls out.**
3. **The regulation is structured in a way that does not incentivize either the utility or the minigrid to interconnect**
   - The Utility is compensated with donor money for building over a minigrid but not for interconnecting with one
   - The payout structure for interconnection isn’t commercially viable
4. **The technical standards for minigrids are different from the grid**
5. **The Utility doesn't understand minigrids and is skeptical of interconnection**
Current Status of MG integration

- Regs Exist
  - Tanzania
  - Nigeria
  - Kenya
  - Uganda
  - Zambia
  - Sierra Leone

- Pilot Implementation
  - Nigeria

- Successfully Operating Interconnected Minigrids
  - India
  - TBD in Africa
Policy & Regulatory support required to support Interconnected Mini Grids

Different options for grid arrival
- Sale of all assets to utility and exit
- Independent power producer selling power to utility
- Sale of generation assets and become independent power distributor purchasing power from grid
- Decommission and transfer assets to other sites
- Continuation of grid operation

Source: Decision tree for grid arrival. Esmapi, 2019
### Policy & Regulatory support required to support Interconnected Mini Grids - Examples of grid arrival rules

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<tr>
<th>Option</th>
<th>Description</th>
<th>Example</th>
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| Small power distributor (SPD)              | • Mini grid operator retains its distribution assets and purchases electricity wholesale from the utility, selling to its customers.  
• Generation assets are transferred to the utility, sold to a third party or moved to another location.                                                                                                                                                                      | *Cambodian*                                   |
| Small power producer (SPP)                 | • Distribution network is transferred to the utility  
• Mini grid operator retains its generation assets, becomes an independent SPP, and sells power to the utility.                                                                                                                                                                         | *Uttar Pradesh, Tanzania & Bangladesh-*  
power is sold at feed in tariff               |
| Small power producer and distributor (SPP+SPD) | • Mini grid operator retains both its distribution network and generation assets.  
• It can sell its excess power to the main grid.                                                                                                                                                                                                                                   | *Nigeria. & Tanzania* Mini grids have the option to convert to SPD and SPP. |
| Asset buyout                                | • The utility purchases and operates the mini grid assets.  
• this can include partial asset buyout (of distribution assets only).                                                                                                                                                                                                              | *Uttar Pradesh & Nigeria*                   |
Policy & Regulatory support required to support Interconnected Mini Grids

Enablers

- Net metering rules
- Certainty of tariffs, for the various modes of interconnection
- Grid Arrival Integration fund to cater for unforeseen costs incurred by developers at interconnection

Compensation Mechanisms

- Repayment of debt - principal and interest
- Depreciation
- Return of investment for shareholders
- Revenue compensation

Key Considerations

- Is inter-connection allowed?
- Technical standards for inter-connection
- Tariff and licensing upon interconnection (and subsidies for mini-grid)
THANK YOU!

Contact us via communications@africamda.org

Visit us on www.africamda.org / Follow us on Linkedin & Twitter
References

1. World Bank, 2019. Investing in Mini Grids Now, Integrating with the Main Grid Later: A Menu of Good Policy and Regulatory Options

2. World Bank ESMAP, 2019. Minigrids for Half a Billion People