



## THEMATIC PARALLEL SESSION: ENERGY

**New Initiative:**  
Green Mini Grid Africa Strategy and Rural Electrification

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**SPECIALIZED TECHNICAL COMMITTEE (STC) ON**  
**TRANSPORT, TRANSCONTINENTAL AND INTERREGIONAL INFRASTRUCTURES,**  
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# Green Mini-Grids Africa Strategy – Outline of Presentation

The need for a GMG Africa Strategy, aim and objectives

The five essential elements of a GMG enabling environment

How to implement the Strategy



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# The Critical Role of GMGs in Africa

- **IEA's World Energy Outlook 2015: 70% of Africans without electricity**
- **Essential public services & economic development**
- **Options: grid extension, mini-grids, stand-alone systems**
- **40% of new power most cost-effective with mini-grids**
- **Widely available renewable energy resources versus expensive fossil fuels**
- **Environment & development benefits = international support**





# Overcoming the Barriers to GMGs

- **The public sector is overextended and needs to focus on the main national grid**
- **Low growth of private GMGs market despite potential**
- **Perceived investment risk – multiple causes**
- **Need for appropriate policy & regulation in order to stimulate private investment**
- **Appropriate policy and regulations reduces risk and allows businesses and financiers to invest**





## Key Aim and Objectives of GMG Strategy

**“..... to trigger within African Ministries of Energy and their partners a commitment to putting into place the policies, regulations and supports needed to create an enabling environment for private investment into GMGs across the continent”.**

**“..... to arrive at mutual agreement regarding the five essential elements that comprise a favourable environment for GMGs; to detail the steps required in each country to put those key elements in place; and to guide countries in the creation of action plans.**



# Critical Factors for Attracting Private Investment in GMGs

<b>Simplified licensing</b>	<b>Integrated energy planning</b>	<b>Cost-reflective tariffs</b>	<b>Clear plans for grid expansion</b>
<b>Standards to ensure quality</b>	<b>Financing and subsidies</b>	<b>Training to build local skills</b>	<b>Streamlined regulations</b>
<b>Education of stakeholders</b>	<b>Long-term ops &amp; maintenance</b>	<b>Independent regulation agency</b>	<b>Tax reduction/exemption</b>
<b>Clear plans for ownership</b>	<b>Mapping villages &amp; energy resources</b>	<b>Market development plan</b>	<b>No barriers to DC supply</b>

↑ INCREASING LEVEL OF PRIORITY





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# Five Essential Elements to Enable GMGs

- 1. Enact clear regulations and provide simple licensing procedures**
- 2. Communicate plans for expanding main grid**
- 3. Enact laws that allow for cost-reflective tariffs**
- 4. Undertake integrated energy planning**
- 5. Increase the capability of government officials and service providers to implement GMGs**







# Simplified Licensing Requirements and Procedures

- Obtaining licences and permits for mini-grid businesses is often problematic. Many countries do not have specific mini-grid regulations. In those that do, the process of obtaining licences is often lengthy, bureaucratic and unclear, in some cases taking up to 3 years for a single mini-grid.
- In addition to the licences, other documents that may be required include certificates of incorporation, land lease or ownership documents, construction permits, environmental and social impact assessments (ESIAs), health and safety certificates, water use rights (for hydro projects), and rights of way.
- Many government agencies may be involved and their responsibilities may overlap.
- **Governments should keep GMG licensing requirements as easy and as streamlined as possible.**



# Dependable Outcomes in the Case of Main Grid Arrival

- Investors need to know the potential market for GMGs in a target country. A key element of this potential is the possibility of main grid extension. **Government needs to communicate and regularly update main grid extension plans.**
- Mini-grid developers and their investors need long-term certainty that their investment is protected.
- Potential GMG investors and developers need to know what steps will be taken if/when the grid arrives at a community that is already being supplied with power from a mini-grid.
- **Government regulation can help to reduce this risk by mandating one of several possible outcomes:**
  - the mini-grid could become embedded generation through a small PPA;
  - the mini-grid could become a power distributor in the local market;
  - the government could compensate the GMG developer for project assets if the mini-grid is no longer economically viable.





# Appropriate Tariff Structures and Public Funding

- Tariffs for green mini-grids need to be set independently from the tariffs applied to main grid-connected customers.
- The tariff level for GMGs should be based on what will be affordable and acceptable to remote users, balanced with the developer's need to meet operating expenses, including depreciation, and deliver a fair return on investment.
- Cost-reflective tariffs are critical for GMG market development, even though they are likely to be considerably higher than uniform national main grid tariffs.
- Alternatively, governments and development partners can foster lower GMG tariffs by providing subsidies that offset the high initial capital costs and thereby reduce investment risks.
- **Governments should introduce regulations allowing for cost-reflective mini-grid tariffs, or consider providing public funding to GMGs to offset high ini.**





# Integrated National Energy Planning

- The installation of GMGs should not be considered in isolation from other electrification options.
- When assessing how to bring electricity to communities not connected to the national grid, all the relevant options should be reviewed and the most cost-effective solution determined.
- All cost factors and quality of supply must be fully assessed to objectively determine the most appropriate solution.
- Extension of the main grid will incur a significant cost to construct the additional generation capacity, transmission lines and substations. For GMGs, the capital costs of transmission lines and substations are eliminated, and generation and distribution assets are relatively smaller and therefore less costly.
- GMGs operate as part of a broader energy system, which requires consideration of their context and all associated support structures.
- **Government should establish a framework for future power supply by allocating sufficient resources for integrated electricity access planning.**



# Increased Capability to Support GMG Implementation

- The capacity of government to understand and support the needs of GMG developers is key to successful and sustainable market development.
- A lack of sufficient skilled human resources will be a barrier to GMG sector growth, while government's commitment to increasing capacity will help to attract the necessary investment.
- Government support for the creation of GMG training centres, through universities, vocational institutions, NGOs or rural energy agencies would go a long way toward developing the critical mass of the human resources required for GMG market development.
- The local manufacture of renewable energy technologies for the GMG sector can foster job creation and reduce costs for GMG developers.
- **Government should commit to support training programmes for government officials, local workforce and other GMG actors.**



# African Examples of Good Enabling Environments for GMGs

- **Mali:** GMGs for energy access, integrated energy planning, policy framework, Gov't fund
- **Nigeria:** National GMG policy and regulations, work with private sector on pilot projects
- **Rwanda:** Closing in on universal electricity access, policies and regulations enabling GMGs
- **Tanzania:** Early mover in GMG sector, 3 policy docs cover GMGs, non-regulated tariffs & license exemption < 100kWp





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# National-level Actions

- It is important for each country to have a national policy framework for GMGs that reflects the five priorities outlined here, while also addressing the specific needs of each country. The preparation and/or review of such a policy should be a priority for Government.
- Governments should establish and support an active forum that brings private sector operators into direct contact with Government officials, financiers and end-user representatives.
- **Endorsement of this Strategy by African Ministers will signal commitment to design and implement the proposed actions under the conditions in their own countries. By so doing, Governments will be able to take advantage of the pan-African and broader international expertise available to support GMG activities.**
- Governments should define in detail the necessary work plans for implementation of the GMG Strategy under the conditions specific to their country.





# Support Available

- Although the Strategy focuses primarily on actions required at country-level, some parts of the GMG Africa Strategy will need to be implemented on a regional or Africa-wide level.
- **One example of an Africa-wide action is the Green Mini-Grids Market Development Programme (GMG MDP)**, implemented by the SEforALL Africa Hub at the African Development Bank, which provides GMG tools, products and services to many GMG sector stakeholders. An example includes the technical assistance provided of project developers through the GMG Help Desk (<http://greenminigrid.se4all-africa.org/>). This will be complemented in the months ahead with a second Help Desk providing TA to public sector stakeholders working toward policy and regulatory matters.
- Other international development partners, such as the World Bank and the GIZ, also provide services that support the pan-African GMG sector.
- **Regional economic communities (RECs) and regulator associations also have roles to play in creating a sustainable GMG sector.**





HOW IT WORKS

REFERENCE LIBRARY

APPLY FOR HELP



# SEARCH

Providing a complete information service for developers  
of green mini-grids (GMGs) in Africa.





# Statement of Government Commitment

***“Endorsement of this Strategy by African Ministers will signal the full commitment of their Governments to design and implement the proposed actions under the conditions in their own countries”***

Government Ministers at this meeting:

- recognise the significant role played by GMGs in bringing universal access to electricity;
- welcome the opportunity to mobilize resources for GMGs in their own countries;
- agree to secure their Government buy-in to support national GMG market development.



# Thank you

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