MINIGRIDS FOR RURAL ELECTRIFICATION
MINIGRIDS SUMMIT IN AFRICA

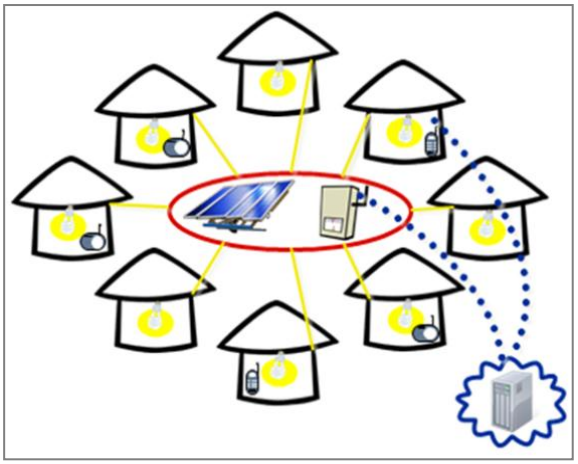
By Ivan Lawrence White

Globally, 1.4 billion people do not have access to electricity with 85% of the off-grid population living in Sub-Saharan Africa which is forecasted to rise from 600 million to 698 million people in 2030.

Given Africa's abundance of energy resources, renewable energy and hybrid-based mini-grids provide a practical, efficient energy access solution.

Currently African electricity distribution suffers from a widespread existence of isolated and expensive fossil-fuel based mini-grids as well as from very low grid connection rates, lack of reliable, centralized generation capacity, and increasing levels of densification as a result of ongoing urbanization. The development of renewable energy mini-grids represent a viable answer to these burdens.

Highlighting the importance of mini-grids for rural electrification is also the Africa Mini-Grids Summit which will take place in Nairobi (Kenia) on November 18th and 19th 2014. The Summit will convene key decision and policy makers along with the power players to share their invaluable expertise and experience to strategize mini grid blueprints and illustrate the roadmap for Africa on this sustainable energy distribution solution.



Mini-grids hold significant potential for the African energy sector as they increase energy access and are technically and economically viable modern energy provision solutions in off-grid areas.

A *Mini-grid* is an isolated, low-voltage distribution grid, providing electricity to a community, typically a village or very small town.

The technology behind mini-grid systems varies and can include single generation technologies, such as diesel, hydropower, renewable energy or hybrid systems that include two or more technologies. For example, the hybrid mini-grid delivery system combines renewable energy sources with dispatchable power (e.g., diesel generation) as a backup. A major benefit of this system is the cost savings generated by the decreased dependence on fossil-fuel inputs and the increased reliability of available power.

Although there are numerous approaches to mini-grid systems development, the most effective are:

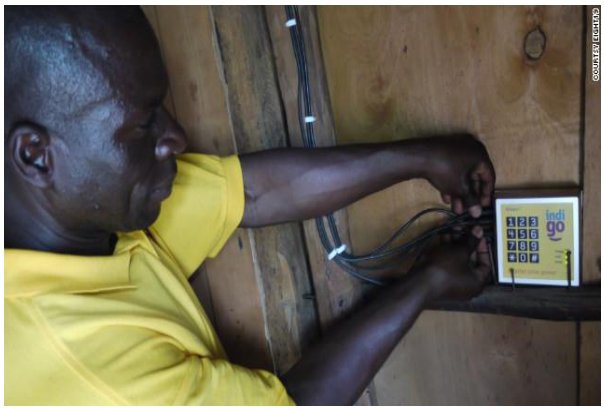
- designed with local context in mind, including

socio-economic, energy resource, and human capital conditions;
- structured with sustainable and robust finance models that adequately meet operational, maintenance, and management costs;
- and supported by appropriate national institutions and policies that effectively incorporate the interests of relevant stakeholders.

The benefit generated by these mini-grids is the increased access to clean energy through the creation of an expanding market of green mini-grid installations in Africa serving rural villages unconnected to the main grid.

Many African Countries are benefiting from these systems and others are planning them. Kenya, Tanzania, Malawi, Rwanda, Mozambique, Uganda, Democratic Republic of Congo, Nigeria, Zambia, Mali and Senegal have already adopted the mini-grids strategy to guarantee energy access to many of their most remote communities and in many cases are supported by International Organizations like UNIDO and UNDP, or Governments International Cooperation bodies like UK DFID, GIZ, USAID, amongst others.

By 2018 it is expected that over 110 mini-grids systems will be developed and benefit around 1.3m people, while reducing carbon emissions by around 260,000 Tonnes of carbon dioxide. Electricity access for lighting, communications and productive uses, new jobs, enabling of studying at night and enhancement of public services (such as clinics) and public safety (such as street lighting) are only a few of the positive impacts that mini-grids generate for a sustained and sustainable territorial development.



To know more

Africa Mini Grids Summit web page

Mini Grids in reeep.org

Mini Grids in openknowledge.worldbank.org

PDF document on Mini Grids in openknowledge.worldbank.org

Mini Grids policy briefing in gvepinternational.org

Mini Grids in ruralec.org

Alliance for Rural Electrification 2013 Annual Report

Publication on Mini Grids in ruralec.org