

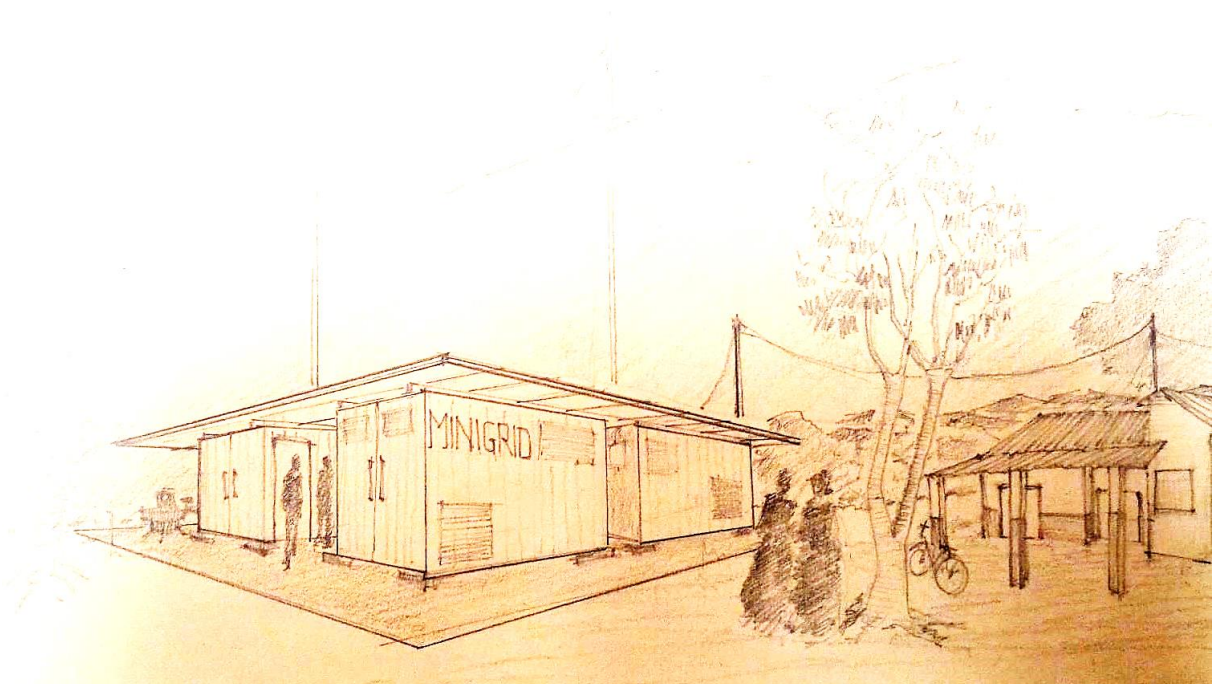


MICRO-GRID ACADEMY

*East African Regional Training Course on Mini-Grids:
From Design to Integration of Productive Uses
through the Water-Energy-Food Nexus*

Concept Note and Agenda

DRAFT 19/03/2019



6 – 11 May 2019

Nairobi, Kenya

1. INTRODUCTION AND CONTEXT

The provision of affordable, reliable, and sustainable energy is essential for the development of sustainable economies, as it advances and strengthens productive capacities that promote socio-economic development in an environmentally sound manner. However, all the East African Community (EAC) partner states face significant energy challenges. Large proportion of the population of the EAC region remains without access to modern energy services, and progress in expanding electricity access has lagged behind population growth. Although there has been some progress in scaling up access to modern energy in the EAC region, electricity access in region is still just about 30%. A lot still has to be done in order to achieve electricity for all by 2030, as per the aspirations expressed in the Sustainable Development Goals (Goal#7).

Micro-grid (MG) is one of the most viable options for generation capacity increase in Africa to solve raising urban and rural electricity needs. Taking advantage of the readily available solar radiation, min-hydro and wind potentials, in the application of MG can solve the unreliable and epileptic energy the East African region. Electricity from microgrids can support new businesses in a village generating economic development. In fact, the EAC region has several operational small hydropower plants based on solar photovoltaic, minihydros and other renewable energy technologies.

Despite some clear advantages of private sector participation in electrification efforts, there are several challenges that must be overcome to make these projects attractive to potential investors and project developers. The challenges include security of revenue streams, long-term risks and policy certainty, regulatory transparency and complexity, as well as practical challenges relating to local organizational structures and technical skills for operation and management of micro-grids.

2. OBJECTIVES OF THE MICRO-GRID ACADEMY

The Micro-Grid Academy (MGA) was launched in January 2018 and reached, in its pilot year of training activities, more than 200 people coming from all the East-African countries and beyond. The specific objective of the MGA is to conduct capacity building activities upon energy access and decentralized renewable energy solutions directed towards East-African young technicians, managers and engineers, supported by a real 20-40 kW mini-grid system installed on-site. This will contribute to enhancement of access to energy in rural communities and foster local enterprise and job creation.

3. COURSE CONTENT

The training will be focus on **Mini-grids: from design to integration of productive uses through the Water-Energy-Food Nexus**. It will provide a general overview of the whole mini-grids' value chain for rural electrification, hands-on learning in labs about renewable energy technology, site visit to a community mini-grid. The topics to be covered include:

- Mini-grid basic elements and architecture
- Components for generation and energy storage
- Design of a mini-grid
- Productive uses of energy for rural development
- Community involvement and energy needs assessment
- The Water-Energy-Food Nexus
- Business models

4. CERTIFICATES

Upon successful completion, the participants will receive certificates of attendance.

5. PARTICIPANTS QUALIFICATION AND PREPARATION

- The course is open to a maximum of 50 participants from the EAC Partner States.
- The participants should be technicians, operators or entrepreneurs dealing with micro-grid applications.
- Applicants must be able to speak and read English.
- Applicants from all countries can apply to participate to the MGA. However, applicants from Sub-Saharan countries and particularly from East African Community (EAC) will be given priority.
- Applicants up to 30 years old and women (of any age) will be given priority.

6. REGISTRATION PROCESS

Applicants should complete the [application form](#) and send their CV by e-mail to info@microgridacademy.org and copy info@eacreee.org by 15th April 2019. The applications must be endorsed by the employer. Nominations received after deadline will not be considered.

7. FINANCIAL ARRANGEMENTS AND LIABILITIES

There will be **no tuition fees charged**. However, **the costs of travel and accommodation during the training course will be covered by each participant or their employers**. The organizers will provide course materials, modest lunch and coffee breaks during the course.

It will be the responsibility of each participant to make his/her own reservation and arrangements for commuting between the hotel and the venue. The participants should get in touch with the local organizer, Carol Mwendwa (mwendwacarol.avsi@gmail.com), for assistance in booking the accommodation.

8. LIABILITIES OF DAMAGES

The organizers of the course do not accept liability for the payment of any cost or compensation that may arise from damage to or loss of personal property, or from illness, injury, disability or death of a participant while he/she is traveling to and from the course, and it is clearly understood that each participants (or sponsor), undertakes responsibility for such coverage. The participants would be well advised to take out insurance against these risks.

9. THE ORGANIZERS AND PARTNERS

The course is jointly organized by the East African Centre of Excellence for Renewable Energy and Efficiency (EACREEE), Renewable Energy Solutions for Africa (RES4AFRICA), AVSI Foundation, Kenya Power and Lighting Company (KPLC), Strathmore University, St. Kizito Vocational Training Institute and supported by Enel Foundation.

Local Organizer (Contact Person) is:

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AVSI Foundation

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DRAFT

Agenda

DAY 1 – May 6th

MICRO-GRIDS FOR COMMUNITY DEVELOPMENT

Strathmore Energy Research Centre (SERC) – Ole Sangale Road, Madaraka

10:00 – 10:30	Registration	
10:30 – 10:45	MGA module presentation	MGA partners
10:45 – 11:00	Improving access to energy	EACREEE*
11:00 – 11:15	<i>Coffee break</i>	
11:15 – 12:00	Decentralized electrification models: why mini-grids?	RES4Africa
12:00 – 12:30	HelioLearn's training platform	LEDsafari
12:30 – 13:30	<i>Lunch break</i>	
13:30 – 15:30	SERC facilities' visit	Strathmore
15:30 – 16:30	Mini-grid technologies	Academic partners
16:30 – 16:45	<i>Coffee break</i>	
16:45 – 17:00	Resume of the contents	RES4Africa

DAY 2 – May 7th

RENEWABLE ENERGY TECHNOLOGIES FOR DECENTRALIZED APPLICATIONS

St. Kizito Vocational Training Institute – Githurai

09:00 – 10:00	Mini-grid basic elements and architecture	RES4Africa, St. Kizito
10:00 – 11:15	Working groups: control systems	St. Kizito
11:15 – 11:30	<i>Coffee break</i>	
11:30 – 13:00	Working groups: distribution & wiring	St. Kizito
13:00 – 14:00	<i>Lunch break</i>	
14:00 – 15:00	Productive uses of energy for rural development	InspiraFarms*
15:00 – 16:00	Energy for productive uses: Matembwe and Ikondo mini-grids	CEFA*
16:00 – 17:00	Community involvement and energy needs assessment	Energy4Impact

DAY 3 – May 8th

MICRO-GRID DESIGN USING THE NEXUS APPROACH

UN Headquarter – United Nations Ave

Schneider Electric – Mombasa road

09:30 – 11:00	UN Headquarter visit	UN
11:00 – 11:30	The Water-Energy-Food Nexus: basic elements	UNEP*
11:30 – 12:00	Productive processes and technologies in Nexus case studies	SmatAcre Energy*

12:00 – 13:00	Lunch break	
14:30 – 15:00	Mini-grid technologies	Schneider Electric
15:00 – 15:15	Coffee break	
15:15 – 16:00	Operation and maintenance on mini-grids	Schneider Electric
16:00 – 16:30	Visit to the facilities	

DAY 4 – May 9th
DESIGN AND OPERATION

KPLC Institute of Energy Studies and Research (IESR) – Ruaraka (next to Utalii Hotel)

09:00 – 11:00	Design of a mini-grid	Academic partner
11:00 – 11:15	Coffee break	
11:15 – 13:00	Feasibility study for a mini-grid project	RES4Africa
13:00 – 14:00	Lunch break	
14:00 – 15:30	Plant maintenance and safety issues	Enel Green Power*
15:30 – 15:45	Coffee break	
15:45 – 17:00	Working groups: project design	

DAY 5 – May 10th
MINI-GRID DEVELOPMENT and FIELD VISIT

AVSI Foundation – Thika Road (next to TRM)

09:00 – 11:30	Analysis of mini-grid case studies	RES4Africa
11:30 – 11:45	Coffee break	
11:45 – 12:30	Certificate ceremony	
12:30 – 14:00	Lunch break	
14:00 – 17:00	Transfer to site	

DAY 6 – May 11st
FIELD VISIT

Olaika, Kenya*

09:00 – 15:00	Training on field: Productive uses of energy connected to mini-grids Data collection for mini-grids design and management	RES4Africa
15:00 – 18:00	Transfer to Nairobi	

* To be confirmed