



RENEWABLE ENERGY SOLUTIONS
FOR THE MEDITERRANEAN



RENEWABLE ENERGY SOLUTIONS FOR AFRICA

RES4MED&Africa

IOREC 2018

Supporting Renewable Energy entrepreneurship

31st October 2018

Renewable Energy Solutions for the Mediterranean & Africa is a multi-stakeholders network from across the clean energy value chain aiming at **creating an enabling environment for RE investments** in target countries through **3 strategic work streams**:

1. Acting as a connecting platform for **dialogue & strategic partnerships** to exchange perspectives and foster cooperation
2. Providing **technical support & market intelligence** through dedicated RE studies and recommendations
3. Leading **capacity building, training & innovation efforts** based on members' expertise to enable skills and knowledge transfer



**Regulatory, TSO,
Industry association**



**Consulting
Engineering
Legal**



**Academia
R&D
IGOs/NGOs
Foundations**





2013

"Renewable Energy **solutions within the MED** electricity market"



2014

"Delivering Renewable Energy investments in **Morocco**: Challenges and opportunities"



2015

"Delivering Renewable Energy investments in **Egypt**: Challenges and opportunities"



2016

Enhancing investments for clean tech solutions, **beyond MENA towards Africa**: challenges and opportunities



2017

Innovation as the key enabler to power Africa



2018

Sustainability and bankability of RE power projects

... 2019

Renewable energy and the water-energy - food nexus in Africa

WS 1 Dialogue & strategic partnerships

Conferences and high level seminars

2016 - RES4MED Day **Morocco** -
"Morocco and Italy for the transition
to clean energy towards Africa"

2018 - Business-to-Government on
liberalization **Morocco**

2014 - RES4MED Day
Morocco -

**2017 - Algeria Executive
Seminar** in collaboration with
Sonelgaz

2017 - Tunisia Executive Seminar
In collaboration with **STEG** and
ANME

2018 -
RES4Africa
Program Launch
Zambia

2017 - RES4Africa Program
Launch **Ethiopia**

2017 - European Commission DG
DEVCO, DG Energy, DG NEAR, DG
Innovation (Brussels)

2018 - Italian Ministry of Foreign
Affairs and International
Cooperation (Rome)

2015 - RES4MED Day **Egypt**

2018 - Business-to-Government
on project finance **Egypt**

2016 - RES4Africa Program
launch **Kenya** "A step
change in the deployment
of RE in Eastern Africa"

2018 - RES4Africa EXPO
event **Kenya** - "Renewable
Energy in East-Africa: New
Frontiers"

2018 - **Business-To-
Government** seminar in
Kenya on transition from
FiT to auctions



RES4Med 2018 publications

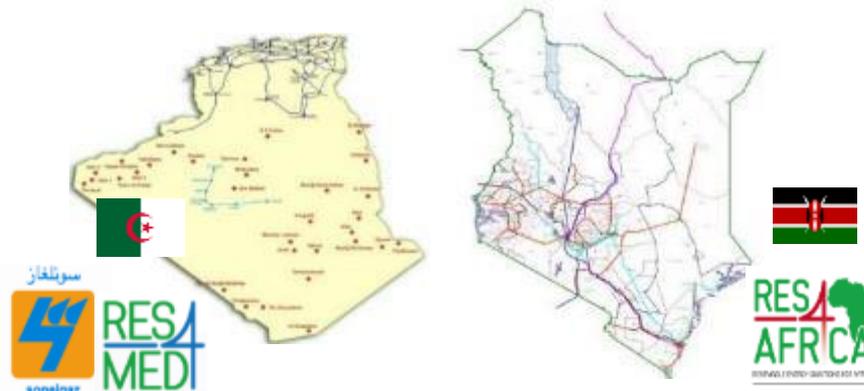


RES4Africa 2018 publications

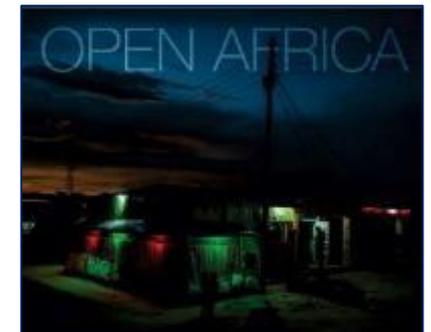
Integration of Non-Programmable Renewable Energy in the National Electric System of **Algeria** and **Kenya**



2018 Flagship publication



Next
Ethiopia – Ongoing
Zambia - 2019



Open Africa photographic book

Flagship
initiatives



Advanced Training Course (ATC)

Organized in partnership with Enel Foundation and in collaboration with Politecnico di Milano and Bocconi University. Target participants are 40 High-achieving individuals coming from Sub-Saharan Africa and SEMCs; 10 professionals from RES4Med&Africa members; 10 Ph.D. or MD students and researchers from Italian Universities. **Next edition (V Ed): Milan, 12-23 Nov 2018**



Micro-Grid Academy (MGA)

Vocational capacity building platform in Nairobi to train young East-African professionals upon decentralized RE solutions. So far 100 students reached (Target 300/400 students/year). A hybrid mini-grid for hands-on training will be installed on-site. **Program to hold sessions in Zambia (22-28 November 2018)**. Enel Foundation is funding the mini-grid construction plus a 1-year training



KENYA - Executive Seminar: guidelines for successful auction program: what does it take?

In partnership with Ministry of Energy of Kenya, Bonelli Erede, EGP, Poyry. Participants: 50 managers and technicians from transmission team the Ministry of Energy and ERB (included CEOs of energy state companies)



ETHIOPIA - Policy responses to climate change: sustainable development&energy transition

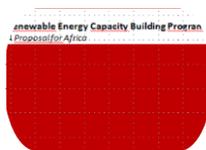
4-days training course for the Ministry of Environment, Forest and Climate Change of Ethiopia, organized in partnership with the Italian Ministry of Environment, Land and Sea. Participants: 100 federal and regional sector officers of the Ministry of Environment, Forest and Climate Change



ZAMBIA - Workshop on non-dispatchable renewable energies integration into the grid

In partnership with ZESCO and CESI, EGP, TERNA. Participants: 50 managers and technicians from transmission team at ZESCO

Institutional
capacity
building



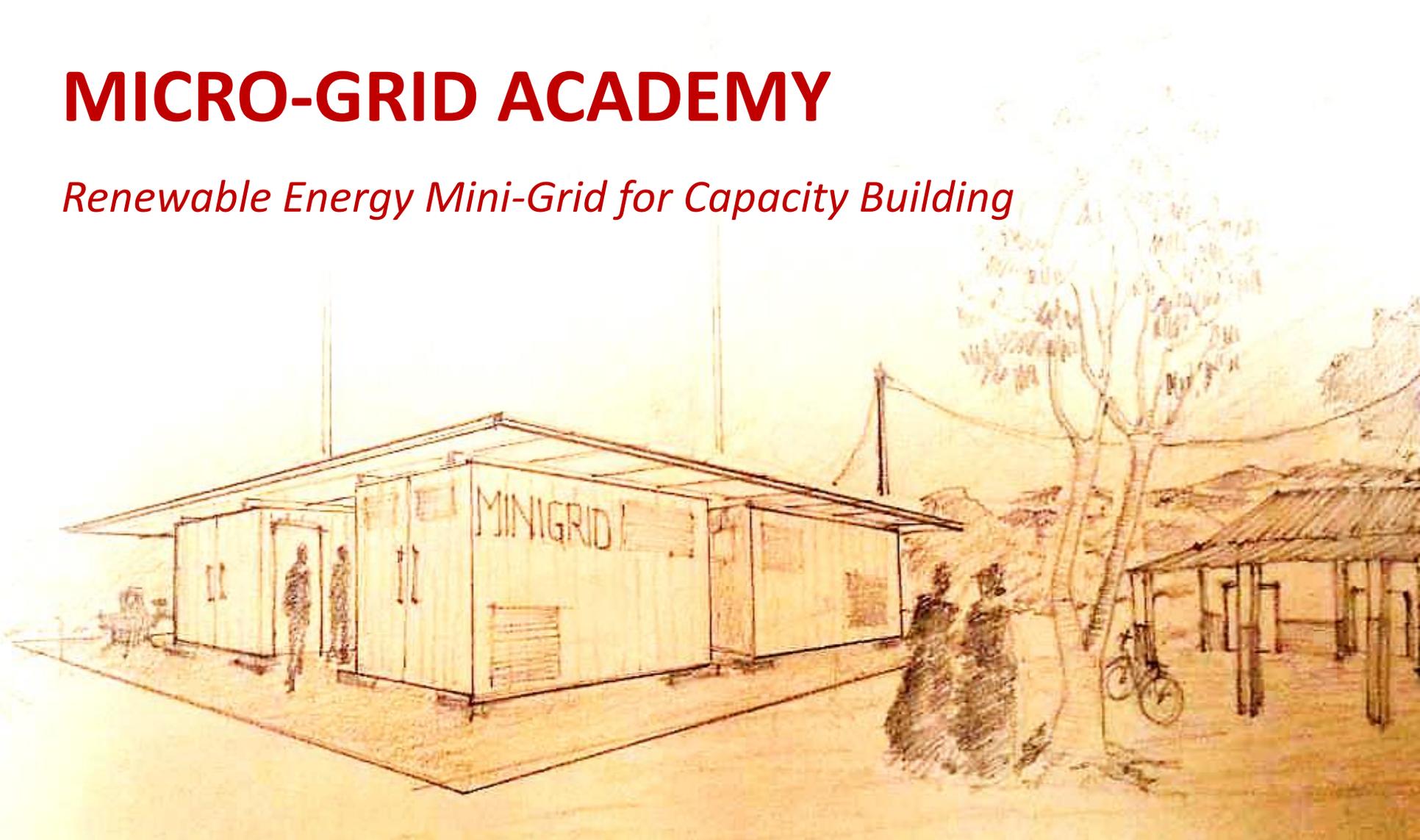
African Union Training Program (2019-2020)

Five training courses with a two years horizon (2019-2020), to be organized in the different African regions in partnership with Africa Union and the Ministry of Foreign Affairs. **Two permanent regional program** hosted on yearly basis **in different African countries** (MOROCCO, ZAMBIA) + **Three Technical Summer Schools** directly on-site of RE Power plants to strengthen project development and operation & maintenance skills (KENYA, SENEGAL, CAMEROON)

International
initiative

MICRO-GRID ACADEMY

Renewable Energy Mini-Grid for Capacity Building



Micro-Grid Academy PROJECT CONCEPTION

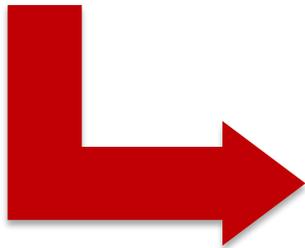
The success of RES4Africa Nairobi Conference 2016, “*A step change in the deployment of Renewables Energy in Eastern Africa*” gave a strong signal of presence in the region and impetus for collaboration with local stakeholders.

What next steps were expected from RES4Africa by local stakeholders?

- **Capacity building and training opportunities;**
- **Improvement of public - private partnerships;**
- Promotion of state-of-art Technology;
- Implementation of a concrete project in East Africa region.



During **the G7 energy side event** organized in Rome by RES4Africa in April 2017, RES4Africa and KPLC announced the intention to set up the MGA



Micro-Grid Academy

First of its kind

Key Objectives of the Micro-Grid Academy:

1. Realization of a **30 kW off-grid hybrid power plant in Kenya** directed toward capacity building activities;
2. Educate new generations of young professionals, about 300-400 every year, through capacity building activities in the energy, commercial, management field;
3. Draft innovative experimental activities to find solutions for access to energy.

Strategic Partner: KPLC

Kenya Power, Kenyan leading company in the electric distribution, is the local strategic partner to realize the project.



Target group:

Young technicians and students from East Africa, Europe and US, passionate and interested in energy access,

“To stimulate innovative ideas and start-up creations with experience exchanges...” (a “cultural clash”)

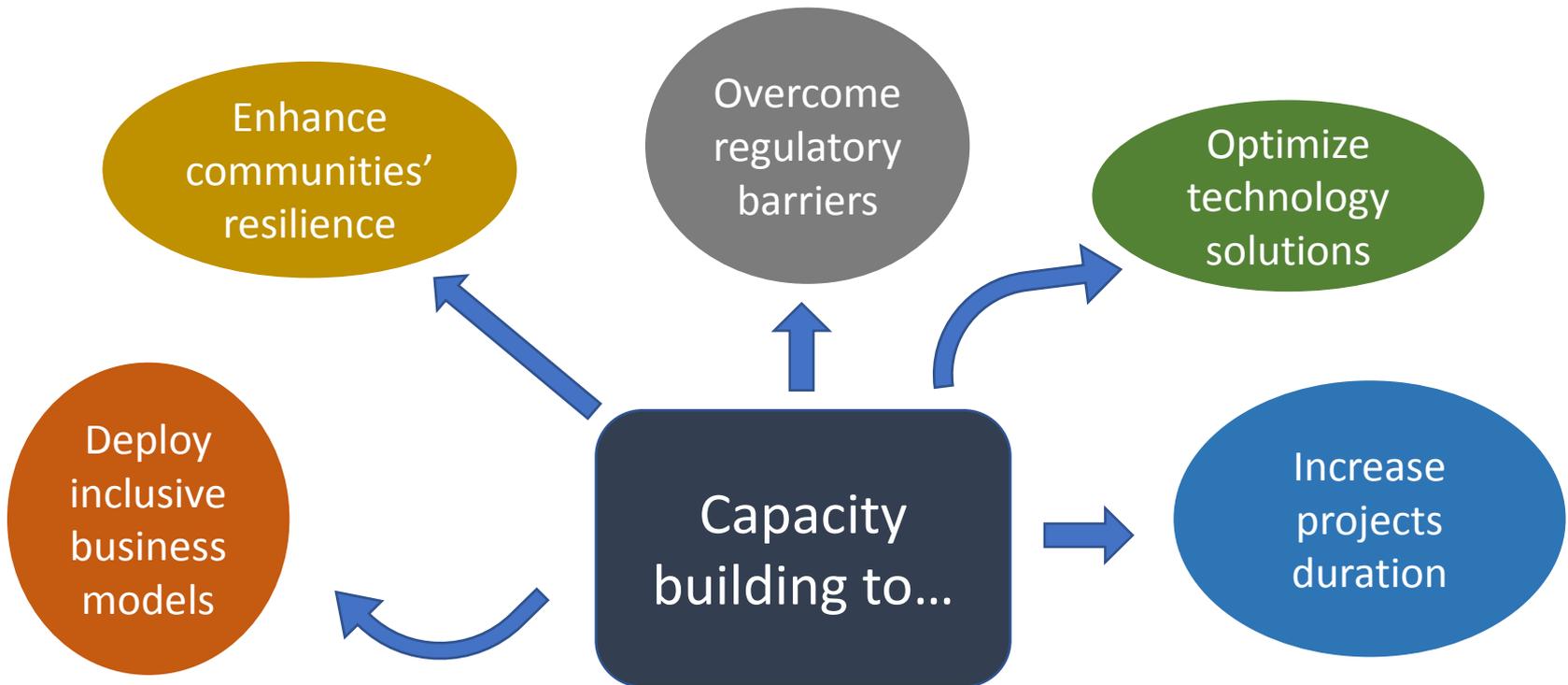
Micro-Grid Academy

WHY CAPACITY BUILDING

“Capacity building in Africa is key to effectively support the emergence of new RE technologies and their rapid spread.

It is important that the revolution in energy access and the transition to renewable energies is not stalled by the lack of human competences“

Vijay Modi, Professor, Columbia University, NY





Micro-Grid Academy TRAINING PROPOSAL

For the purpose of providing all students with the **most suitable education approach** the project foresees several types of training activities.

Permanent Training Activities

targeting **local technicians** in the electric sector to design, install and maintain

On-demand Knowledge- deepening Activities

Addressed to a wide audience and intended **to share and promote new ideas** and innovative projects

Online Remote Classes

To encourage **permanent learning** of technicians and students

Advanced Training courses

2 week courses targeting **professionals in energy management**

Experimental Activities are also foreseen (e.g. testing solutions for the integration of stand-alone systems with the national grid)

The goal is to involve 300-400 student/year !

Micro-Grid Academy

EXECUTIVE TRAINING AGENDA

DONE!
DONE!
DONE!

WHEN	WHERE	DESCRIPTION
January 2018	Kenya	MGA training launch. 1° and 2° training module
April 18	Kenya	3° and 4° training module
July 2018	Kenya	Design thinking workshop
November 2018	Zambia	MGA workshop in Zambia
January 2018	Kenya	5° and 6° training module
1Q 2019	South Africa	MGA workshop in South Africa

In addition to the structured training course to be executed in Kenya, the MGA will also perform specific training workshop in the countries of interest of RES4MED&Africa members

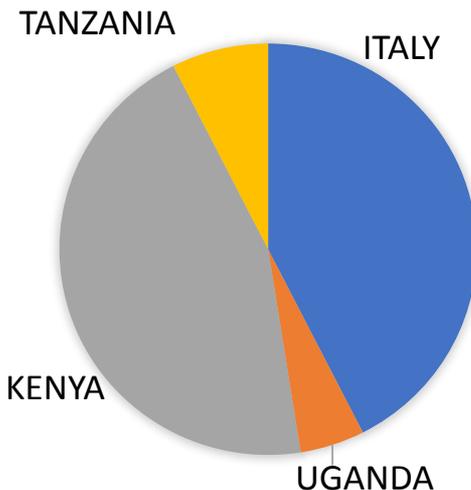


- From January 15th to January 25th , with the support of the Italian non-profit organization **Tecnologie Solidali**, the first training course with **40 participants** from East Africa and Europe took place.
- Lectures provided by **Strathmore University, KPLC, St. Kizito, GIZ, UN-Habitat, SIGORA, Sapienza University, RES4Africa, State University of NY, Columbia University and MIT.**

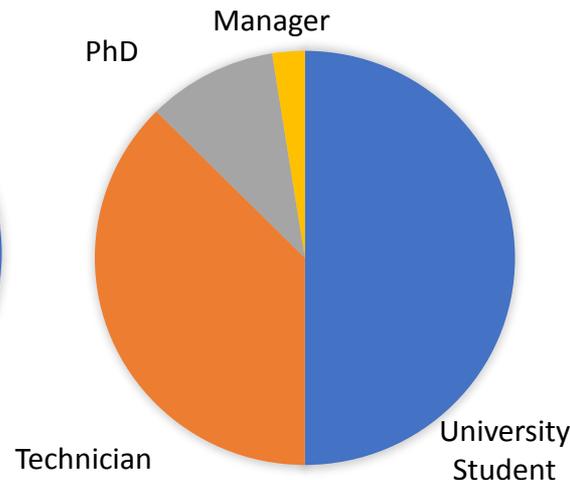


Information about the students

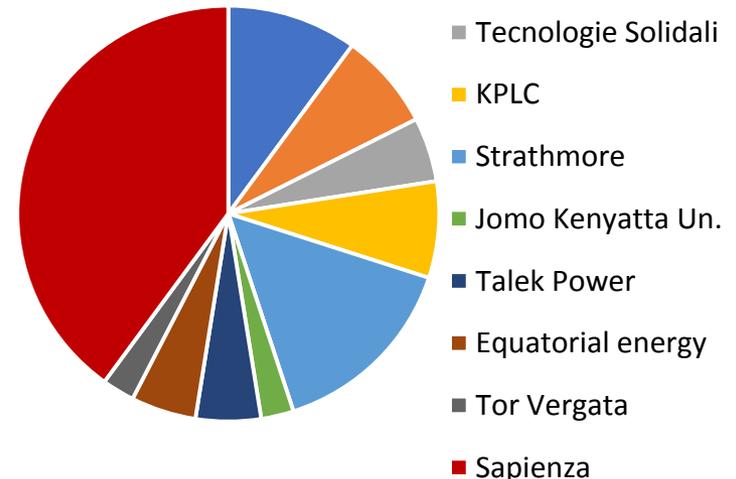
RESIDENCE



SENIORITY



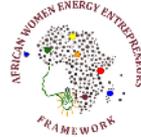
ENTITY



- AVSI
- CEFA
- Tecnologie Solidali
- KPLC
- Strathmore
- Jomo Kenyatta Un.
- Talek Power
- Equatorial energy
- Tor Vergata
- Sapienza

When

4 -13 of April



AWEEF
Africa Women Energy
Entrepreneurship Framework

UN HABITAT
FOR A BETTER URBAN FUTURE



Trainees

42 African and international participants of which **20 East-African women** selected by **UNEP**; 15 participants from EAC countries and 7 international students.

Lecturers and trainers

Provided by:

KPLC, AVSI, Strathmore

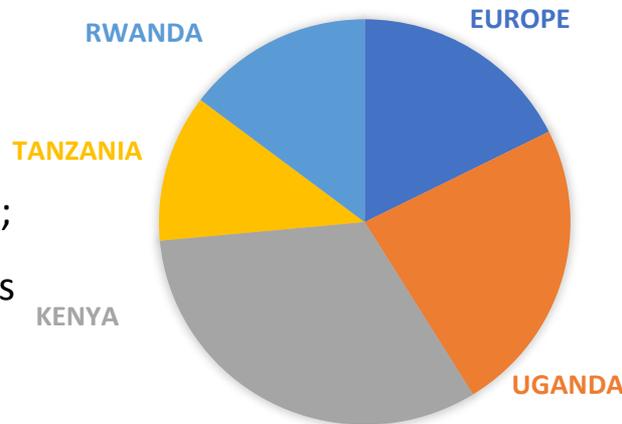
University, St. Kizito VTI,

RES4Africa, Sapienza University of

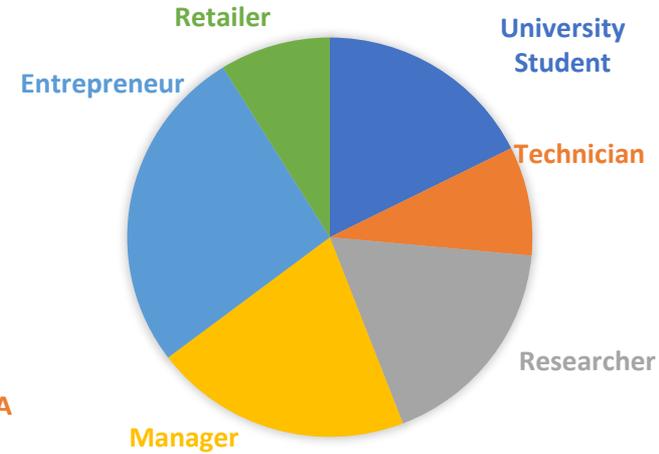
Rome, UNIDO, UN HABITAT, UNEP

and local companies.

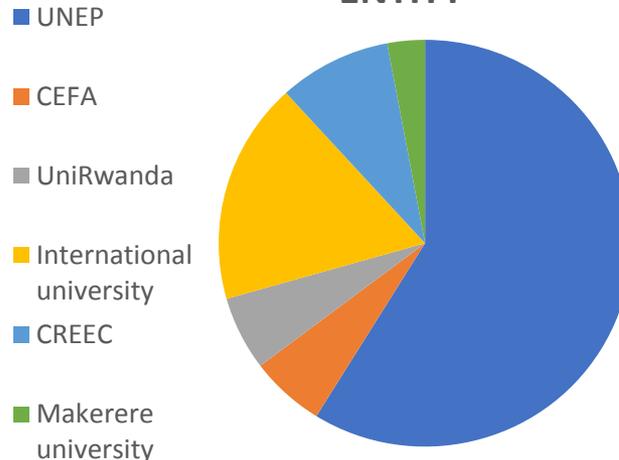
RESIDENCE



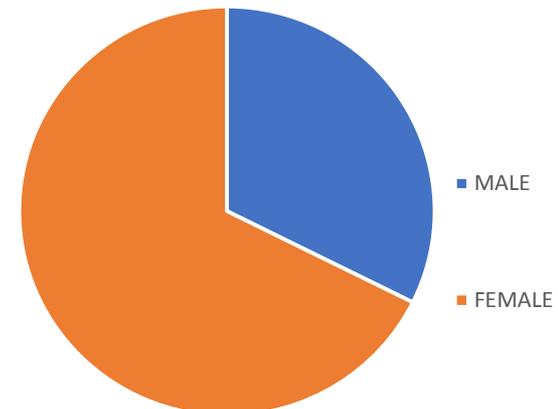
SENIORITY



ENTITY



GENDER





Micro-Grid Academy

July 2018 – Design Thinking Workshop

When & Where: 9 -13 of July, Nairobi, Kenya

Activities:

The **Design thinking workshop** gathered 18 key stakeholders of the energy sector asking them in order to analyze their business's weaknesses and strengths, best practices and lessons learned, to be then addressed and included in the MGA training syllabus.

Main outcomes and recommendation indicated by the participants:

Best practices: i) modulate concepts and technicalities to be as much understandable and interesting as possible for all participants; ii) ensure that the interactions among participants is always lively and with interactive modalities tied to African traditions.

Lessons learned: i) the works already done by national and international agencies in Africa has to be taken in high consideration and to be included and reported during the training activities; ii) new technologies and African available technologies are the most interesting for MGA trainings.

The workshop raised that: i) the MGA should ensure that participants access to internships and job opportunities to put in practice teachings ii) to explore the opportunity to develop projects/activities (complementary to the MGA) engaging local stakeholders to implement local development activities in micro-grid served communities.



Micro-Grid Academy "ON-TOUR" ZAMBIA WORKSHOP

RES4Africa through the **Micro-Grid Academy** will organize, in parallel with RES4Africa Programme Launch conference, a Workshop on Mini-Grid Technologies. The workshop will be organized in partnership with **UNDP** and **University of Zambia** to share a common strategy for Mini-Grid development involving local institutions and developers.

During the training will be announced the launch of the **Solar Energy Centre of Excellence** by Zambia institutions.

When & Where:

22nd - 29th of November, University of Zambia's **Solar Energy Centre of Excellence**, Lusaka.

Trainers and lecturers:

- Universities (*UNZA, Strathmore*)
- Companies (*EGP, AMDA, Wind Kinetic, Zambia MG Investors, RES4Africa Members*)
- Organizations (*UNDP, REA, NGOs*)

Target:

30-40 attendees among decision makers, professionals, UNDP, local and international associations, small and medium companies and universities.



Main sponsors:



Micro-Grid Academy Hands-on training !



Hybrid minigrid

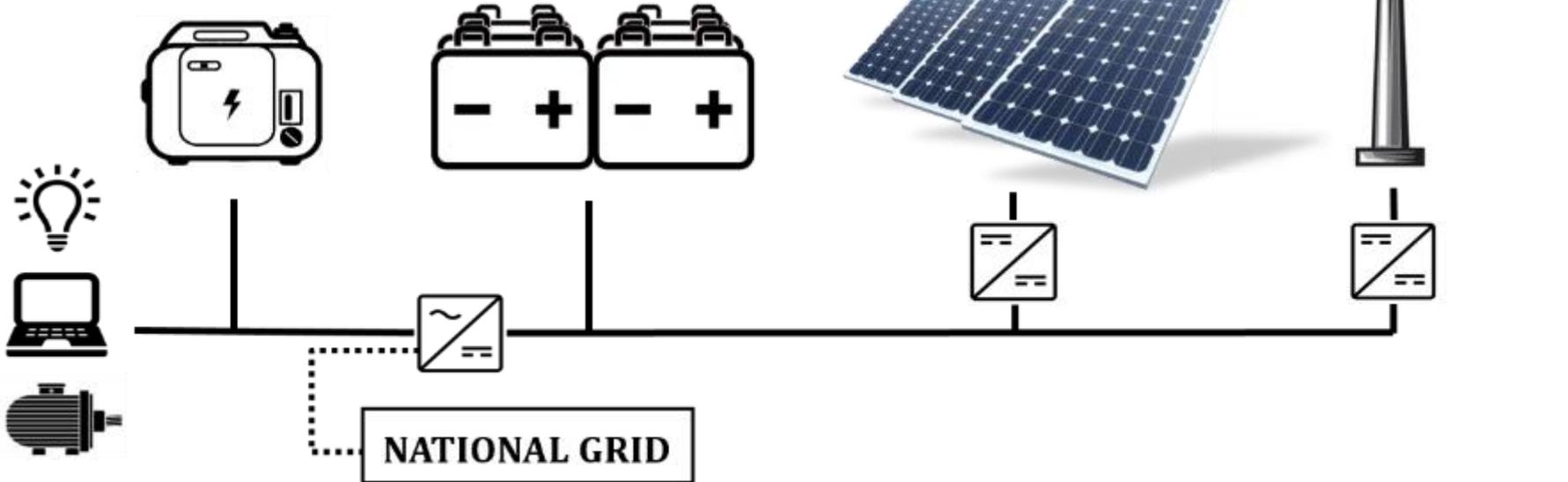
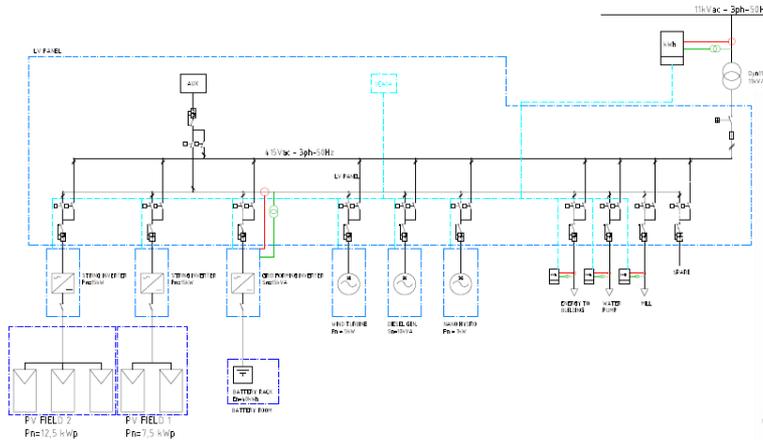
Solar-PV: 20 kWp

Wind: 3 kW

Energy Storage: 12 kWh

Nano-hydro: 0,5 kW

Diesel back-up component: 5-7 kW



Infrastructure:

KPLC is performing the civil works to refurbish the facilities and to allow the installation the MGA plant.

(i) renovation of the main building to host classes, workshop, pc lab;

(ii) preparatory works for the installation of the mini-grid plant.

Works started in February 2018 and to be completed within 2018.

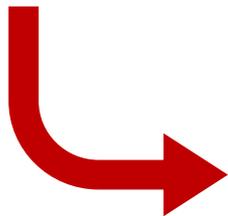
June 2017



March 2018



June 2018



Founding Partners:

Strategic Partnership with **Kenya Power** signed beginning 2017.



Along 2017, **Strathmore** University confirmed its interest to join the **MGA** project.



During last quarter of 2017, **AVSI** foundation and **St. Kizito VTI** joined the project completing the frameworks of partners



Supporting institutions:

Enel Foundation is constantly continuing to support the MGA project both for the economical and the training part.



In August 2017 **EACREEE** endorsed the MGA project inside the EAC programme of Renewables.





Micro-Grid Academy FUNDING

- ✓ **RES4Africa** strongly encourages investments in **capacity building** as it fosters the local know how and stimulates the creation of growing and long lasting sustainable **business opportunities**
- ✓ The **Micro-Grid Academy** implementation requires considerable efforts in terms of human resources, equipment, participants' fees and funds needed to cover construction and operational costs

**RES4Africa is looking for public and private partners with a shared vision,
willing to contribute in compliance with their rules and policies**

The expected support could be provided by the following entities...

Private
Companies

Private
company
Foundations

Ministries

Development
agencies

European
Community

Dev.
Banks

For further details ...



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RES4Africa

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