RES4MED&Africa
IOREC 2018
Supporting Renewable Energy entrepreneurship

31st October 2018
RES4MED&Africa
Mission and membership

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
WS 1 Dialogue & strategic partnerships
Annual Conferences

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

... 2019
Renewable energy and the water-energy-food nexus in Africa

2017
Innovation as the key enabler to power Africa

2018
Sustainability and bankability of RE power projects
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

2017 – RES4Africa Program Launch Zambia

2018 – RES4Africa Program Launch Ethiopia

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

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

Pdf of all interventions available on RES4MED and RES4Africa websites
WS 2 Technical support & market intelligence
Studies and technical recommendations

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**
**WS 3 Training & capacity building**

**Main training initiatives**

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**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.

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**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.

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**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)**
MICRO-GRID ACADEMY

Renewable Energy Mini-Grid for Capacity Building
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 #
**Micro-Grid Academy**

**SUMMARY**

**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”)
“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

<table>
<thead>
<tr>
<th>WHEN</th>
<th>WHERE</th>
<th>DESCRIPTION</th>
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<tbody>
<tr>
<td>January 2018</td>
<td>Kenya</td>
<td>MGA training launch. 1° and 2° training module</td>
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<tr>
<td>April 18</td>
<td>Kenya</td>
<td>3° and 4° training module</td>
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<td>July 2018</td>
<td>Kenya</td>
<td>Design thinking workshop</td>
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<td>November 2018</td>
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<td>MGA workshop in Zambia</td>
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<td>January 2018</td>
<td>Kenya</td>
<td>5° and 6° training module</td>
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<td>South Africa</td>
<td>MGA workshop in South Africa</td>
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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**
- Tanzania
- Italy
- Kenya
- Uganda

**SENIORITY**
- PhD Manager
- University Student
- Technician

**ENTITY**
- AVSI
- CEFA
- Tecnologie Solidali
- KPLC
- Strathmore
- Jomo Kenyatta Un.
- Talek Power
- Equatorial energy
- Tor Vergata
- Sapienza
**Micro-Grid Academy**

**APRIL 2018**

**When**

4 -13 of April

**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.
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.
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.
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.
**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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