



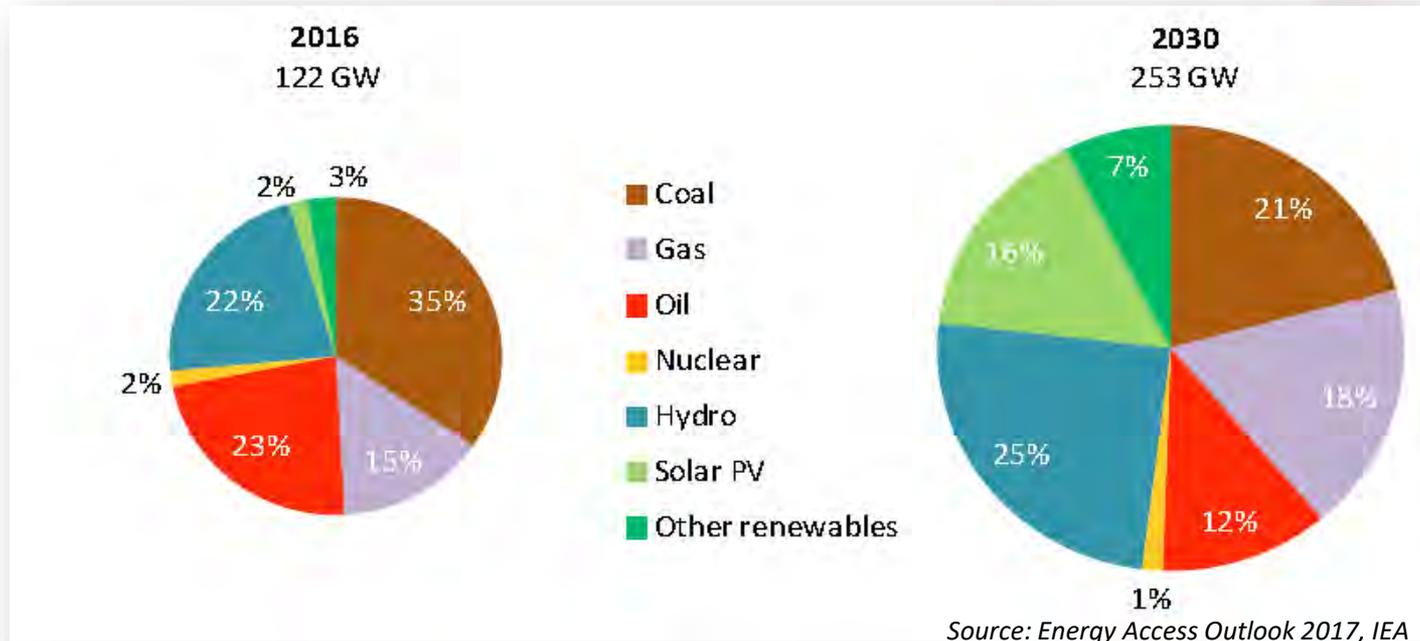
Global Mini Grid Technical Conference

Clinic 8
Capacity Building / Training

Abuja, Nigeria
December 6th, 2017



Power Generation in sub-Saharan Africa



“Mini Grids will be the key to accelerating access to modern energy services in Sub-Saharan Africa.”

Source: Accelerating Mini-Grid Deployment in Sub-Saharan Africa, 2017, World Resources Institute

Global Microgrid Capacity Is expected to grow from 1.4 GW in 2015 to 7.6 GW in 2024

Source: Market Data: Microgrids, 2016, Navigant Research

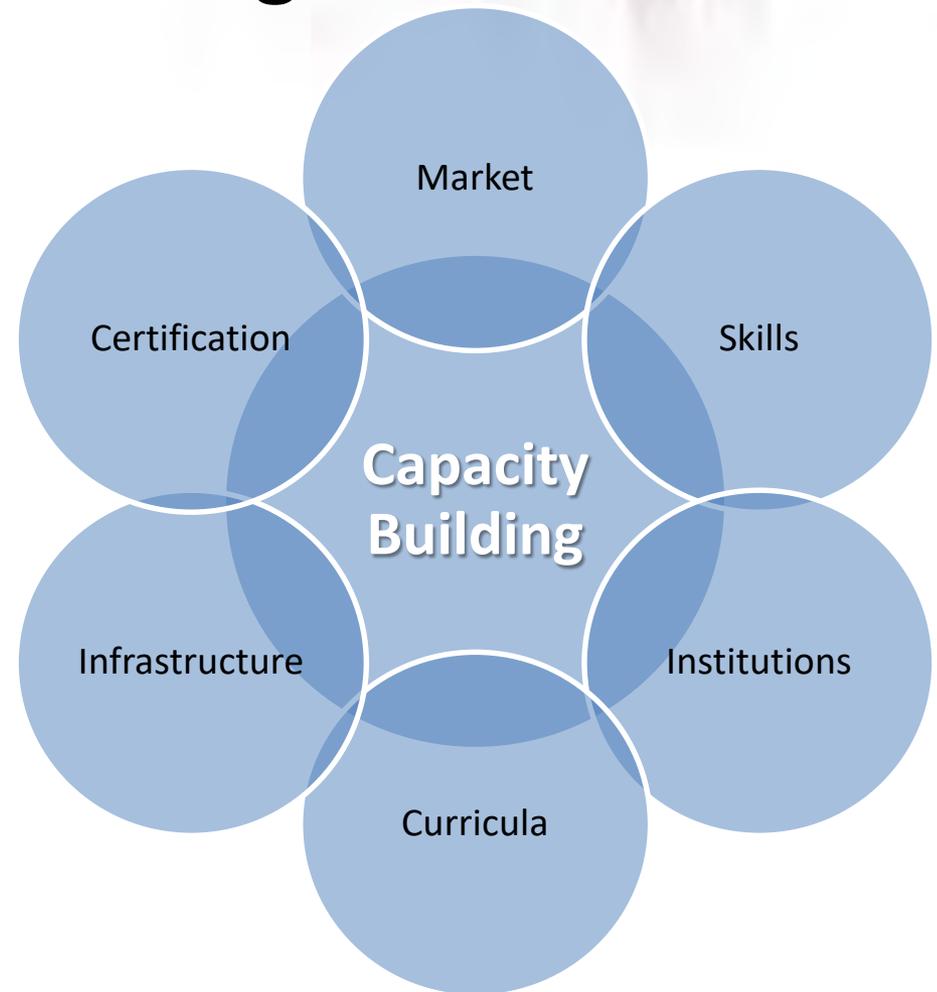
Barriers to Mini-grid Energy Investments

- Inadequate or insufficient policies, legal and regulatory frameworks
- Lack of professionals and technicians skilled in renewable energy technologies
- Lack of or limited resources and/or infrastructure for the training and capacity building of individuals and institutions
- Lack or Inadequate RE courses and curricula in the education systems
- Heavy reliance on external expertise
- Inadequate skills, data, tools for RE planning
- Limited local capacity in developing large RE systems (geothermal, solar farms, wind farms, and other mini-grids)
- Lack of awareness and confidence among government, private sector and consumers on potential, standards and technology choices
- Graduates do not possess the skills needed within the labor market



Holistic Capacity Building Framework

- The transition to sustainable energy systems of the future needs concerted efforts in capacity building
- Capacity Building is a long-term, continuing and holistic process, and depends on ongoing participation and interaction between all the involved stakeholders



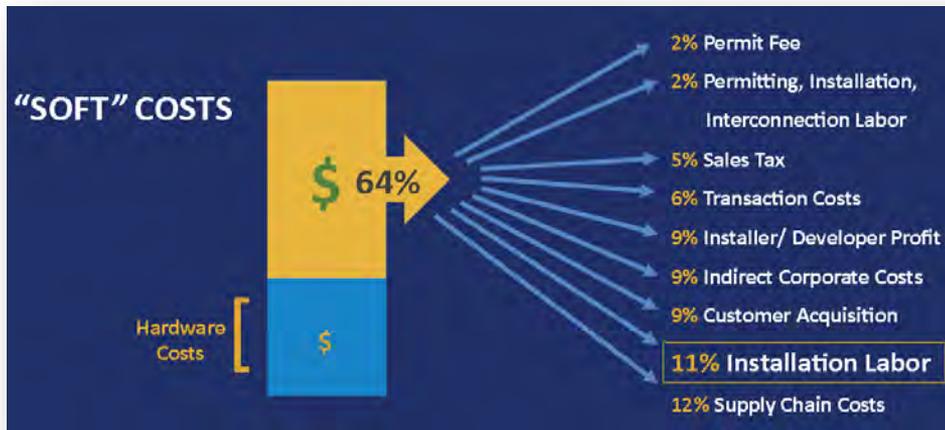


What the Market is looking for?

- **Objective:** “Workforce ready” pipeline of graduates for employment market
- **Challenge:** Institutional certificate, diploma and degree programs slow in adapting skills requirements from market
- **Examples:**

80% of solar companies in the U.S. reported difficulty filling open installation positions!

1. *Previous Experience*
2. *Training*
3. *Certification*



Source: Solar Training and Hiring Insights, 2017, The Solar Foundation, DOE

Clean energy employment and training potential in Nigeria (incl. RE and EE):

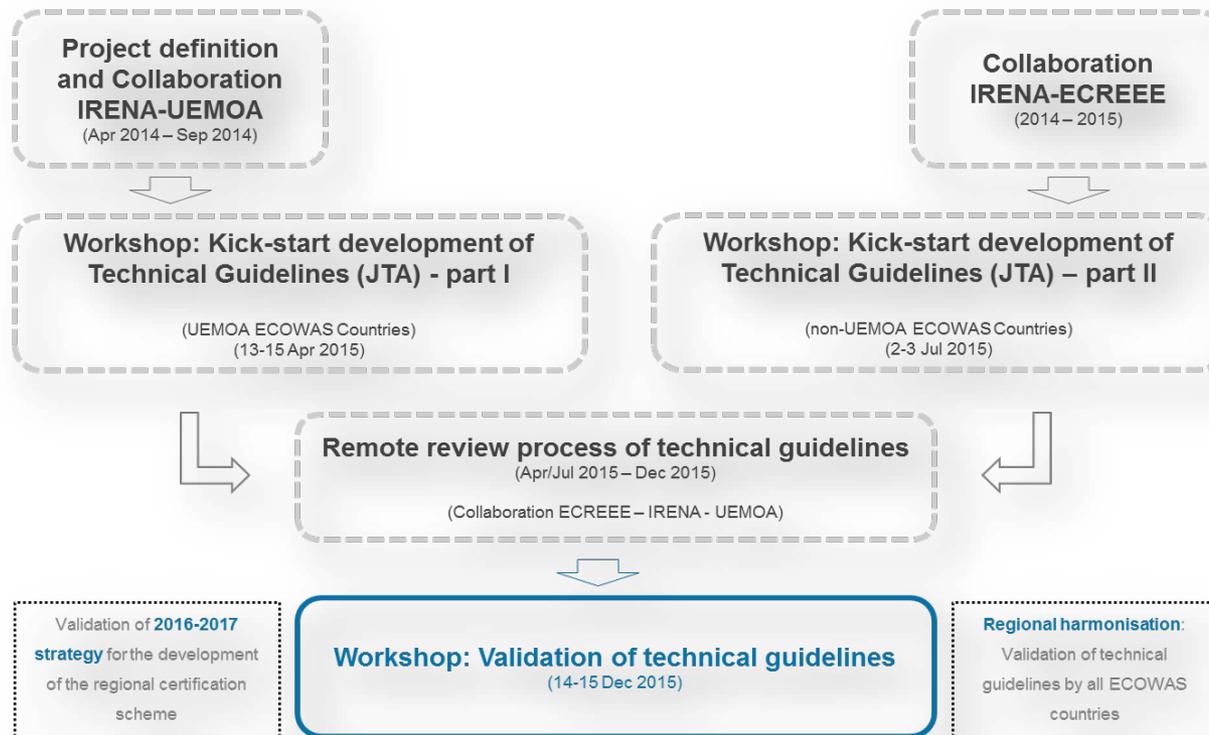
38.000 – 93.000 jobs p.a.

Source: Rapid Assessment of the Magnitude of Clean Energy Training Potential in Nigeria, 2017, NESP



What skills are needed for mini-grid jobs?

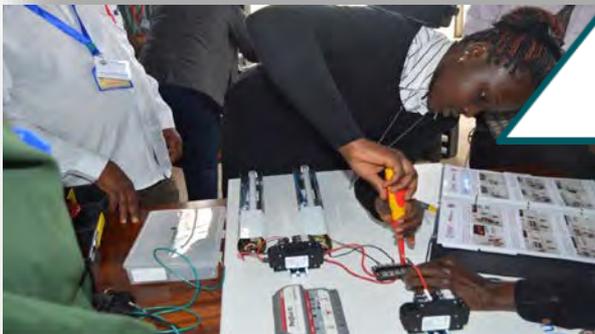
- **Objective:** Identify required competencies and skills for sustainable energy jobs for SE market
- **Challenge:** Availability of national and/or regional competency guidelines for SE jobs
- **Example:** *ECOWAS Certification for Sustainable Energy Skills*





“Tiered” Educational Approach

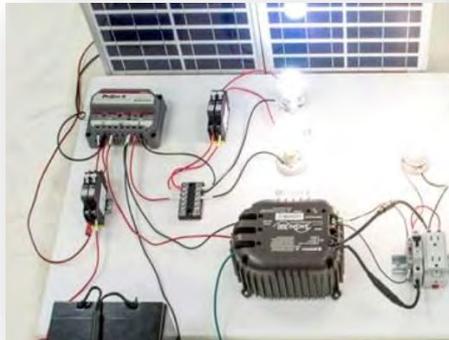
- **Objective:** Offer competence (skills) based educational programs to all relevant stakeholders
- **Challenge:** Coordinated, customized and sustainable training approach
- **Example:** *Vocational, Technical and Policy Training to professionals, educators and policy makers*



Scaling Training Infrastructure

- **Objective:** Provide hands-on experience in design, installation, operation and testing
- **Challenge:** Mini-grid sites are decentralized and remote, trainees can't travel to city centers
- **Examples:** Portable training units for initial training and continuing education

Solar PV Mobile Training Toolkit



Mobile Microgrid Training Platform





The Value of Credentials & Certifications

- **Objective:** Provide accredited and valuable credentials to students and organizations
- **Challenge:** Availability of global, regional or national certification schemes
- **Examples:** Voluntary and/or Mandatory Certification Schemes



NABCEP (U.S.); ERC (Kenya); CVQ (Barbados); ECREEE (West Africa)

