Alliance for Rural Electrification
Shining a Light for Progress

Source:TTA

The role of off-grid Renewable Energy Solutions in sustaining rural development

UN ESCWA Regional Conference, Rabat, 27 November 2013

Marcus Wiemann
ARE Secretary General

Agenda

1. Introduction to the Alliance for Rural Electrification (ARE)
2. The role of off-grid RETs in rural development
3. Focus on the ESCWA region

Acronyms used in the PPT:
RET: Renewable Energy Technologies
RE: Rural electrification

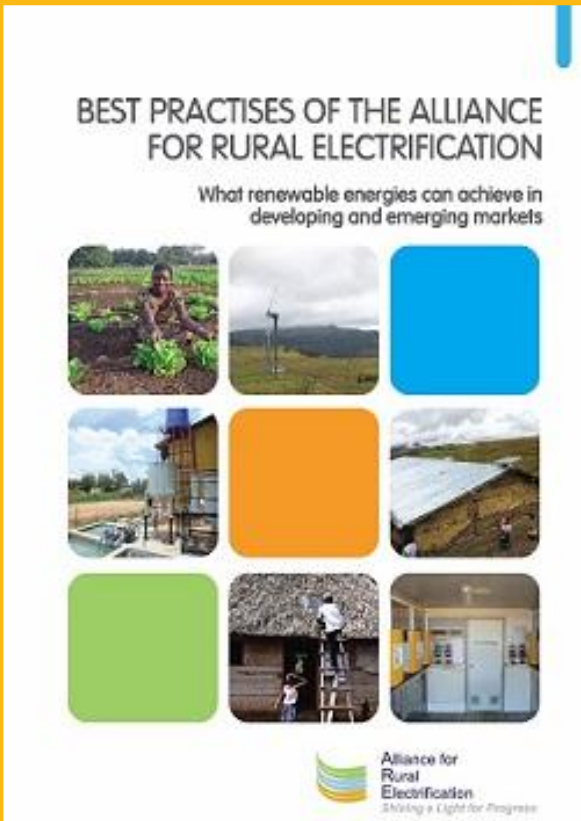
Note:
While speaking about energy, we will focus on its lighting application, as the pure thermal application (mainly used for cooking and heating), falls out of ARE mandate and expertise.

Leveraging our impact through synergies

- International business association representing the **off-grid energy sector** working towards the integration of renewables into **rural electrification markets in developing and emerging countries**

- Enable business and market development by **targeted advocacy** and facilitating **access to international funding**

- Global platform **for sharing knowledge and best practices** to enhance energy access (e.g. hydro, solar, wind) and services (e.g. training)



Diversified & global membership structure

ARE has about 80 members from industry, academia and public sector.
7% from Africa, more than 10 new members in 2013.

Strong partners

We partner with **international organisations**, **projects and initiatives, the media** and **other industry platforms.**

Selected international organisations with which we have formalised cooperations

European Commission

UNEP

euei pdf
energy for development

IRENA
International Renewable Energy Agency

Africa-EU Energy Partnership

UNITED NATIONS FOUNDATION

ebtc
European Business and Technology Centre

How we work

2013 (Focus on Africa & Latin America)		2014 (Focus on Latin America & Asia)		2015 (Focus on Asia & Africa)	
1st Semester	2nd Semester	1st Semester	2nd Semester	1st Semester	2nd Semester
Small Wind	Energy Storage	Small Hydropower	Hybridisation & Power Components	Biomass	Minigrids

Main services:

Business & Intelligence

Business creation and development: Representation at conferences, organisation of ARE events (e.g. business delegations, workshops, webinars), project management , finance and procurement services.

Public Affairs

Awareness creation for nascent rural markets through advocacy, communications & marketing services: campaigns, newsletters, brochures, position papers, tool-kits, market studies.

Positive trends of energy in the international agenda

- **Recognition of importance of energy for development has been progressive**
  - MDGs did not include access to energy as a priority target, but rather as a complementary aspect.
  - However, energy access is a cross-cutting issue essential to the achievement of the other MDGs (e.g. access to proper water, education, health services…).
  - No development policy clearly differentiated from other sectors such as water or agriculture.

- **The first decade of 21th century represents a key milestone in the process**
  - UN:
    - SE4ALL established key milestones
    - Likely that SE4ALL becomes a target of Post-2015 development agenda
  - EU:
    - EUEI and AEEP initiatives of the early 2000s
    - Agenda for Change and the EP resolution
    - New initiatives that are about to be established under the new MFF

Why are rural rates generally lower than urban ones?

- **Fact:** Electricity levels in rural areas generally lower than in urban areas
- **Main reasons:**
  - In the past, RE not a political priority
  - Use of inadequate solutions
- **Main features of rural electricity markets:**
  - **Demand:**
    - Unaware of opportunities
    - Remote and scattered
    - With low and irregular income
    - Low demand needs
  - **Supply:**
    - Low local content
    - Lack of market or feasibility information
    - Poor access to finance or risk mitigation

Source: Phaesun

The case of Morocco

- Programme d'Electrification Rurale Global launched in the 90s resulted in the increase of electrification rates from 50% (1990) to nearly 100 (2013)

- Sucess factors:
  - **Strong political will**
  - **Clear programme** that attracted additional funds from donors
  - **Integrated approach** between on-grid and off-grid
    - 150,000 housholds or ~7% of the rural pop. electricified with SHS
  - **Strong agency** responsible for managing programme
  - **Strong private sector consortia** implementing projects (TEMASOL is the service provider with the largest concession)

- **Model now being replicated in other countries** (e.g. Senegal).

Source: Tenesol

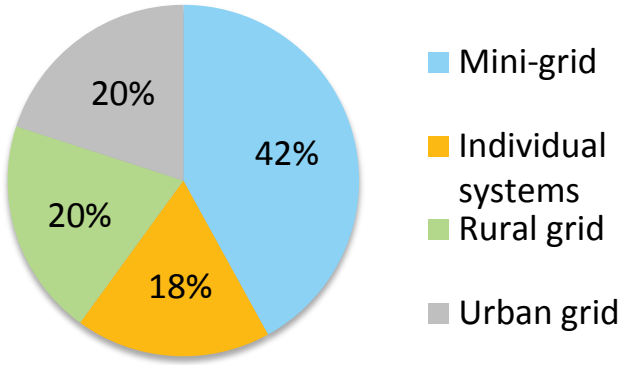
Source: TTA

Both photos: rural electrification projects in Morocco

Off-grid RETs essential to tackle energy poverty

- **Grid extension:**
  - Financially and technically unviable
- **Off-grid diesel:**
  - Higher LCOEs due to high OPEX
  - Important for backup
- **Off grid RETs:**
  - Cheapest over system's lifetime
  - Solutions ready to be deployed
- **Off-grid RET applications:**
  - Mini-grids: advanced serv. x isolated communities
  - Individual systems: basic serv. x isolated households

952 TWh needed to achieve universal electricity access by 2030



Source: UNF, EAPN, June 2012

Why the focus on off-grid RETs for RE?

Electricity fundamental for socio-economic development

→ ARE promotes off-grid RE sector towards key political and financial players

Positive 2030 outlook for off-grid clean rural electrification

→ ARE facilitates networking among stakeholders

Positive RET financing climate to continue in developing countries

→ ARE aggregates and circulates information about financial support and procurement

Promising political momentum as shown by post-2015 SDG agenda and numerous country electrification programmes

→ ARE members in a privileged position in terms of visibility, access to financial and market information

Cont'd off-grid RETs essential to tackle energy poverty

- Target: Isolated and low income rural areas
- Main application: Lighting
- Main objective: Providing reliable, affordable and clean electricity services
- Purposes:
  - Domestic (Improve living standards)
  - Productive (Improve productivity e.g. telecomms sector, agriculture)
  - Community (Improve services e.g. education, health, street lighting etc.)
- Case studies from ARE members in ESCWA region
  - Included in our new Best Practices brochure
  - CEDRO programme (grid back-up)

Source: Fortis Wind

Sunna Design

Off-grid PV LED street light to refugee camp Zaatari (Jordan)

- **Project partners:** French Ministry of Foreign Affairs, UNCHR, Electriciens Sans Frontières
- **Background:** Lack of lighting undermined the security in the camp and unreliable power supply the grid.
- **Objective:** Improve security in the camps and increase levels of autonomy while keeping costs down.
- **Technology solution:** Integrated solar street light with Nickel based battery (robust, small and light, maintenance free). In-built management system.

Source: www.sunna-design.fr

Outcome:

1st phase consisting in 100 units completed.

Two new phases planned.

Trojan Battery Company

Solar Street lighting in Fujarah (UAE)

- **Project partners:** Hydrotruf International LLC and Incon.
- **Background:** Wadi Sidr one of the most remote areas in UAE and household area lighting.
- **Objectives:** Improve road safety thereby contributing to economic development and lighting homes situated along the road.
- **Technology solution:** 245W Polycristalline PV module, 160W LED, two deep-cycle 8D VRLA batteries (maintenance free and deliver superior energy). Telematric monitoring system.

Source: www.trojanbattery.com

Outcome

11.8Km of road and 800 homes located along the road illuminated.

Trama Tecno Ambiental

Country EE and RET Demonstration Project – CEDRO (Lebanon)

- **Project partners:** UNDP
- **Background:** Lebanon rural areas suffer from daily blackouts.
- **Objectives:** Improve weak rural grids through grid backup in public schools and municipal buildings.
- **Technology solution:** Installation of 1 to 3 kWp PV or wind turbines plants with Interconnected dual-mode inc. micro storage.

Source: www.tta.com.es

Outcome:
60 PV and 3 wind micro power plants installed in rural public schools and municipal with daily secured loads in the range of 5 to 20 kWh/day.

Challenges and proposed solutions

Challenges	Solutions
Lack of political will	Stability, long-term master plan and commitment towards RE and access to energy .
Complex institutional framework	Clear distribution of responsibilities among institutions involved + creation of specialised bodies on RE & RETs
Inadequate legal and regulatory framework	Simplification, standardisation (licensing, PPAs, authorisation, access to market etc.)
Public support schemes	One-off for capital investment and/or on-going. Cross-subsidy/ REFiTs / Phase out fuel subsidies.
Access to finance	Credit schemes, guarantees for the banking sectors
Lack of information and need for capacity-building on technical, business, financing.	From simple end-user education to building entrepreneurial skills and technical trainings.
No links to other sectors	Need for an integrated approach: Creation of synergies water, food, telecom sectors

Thank you for your attention.

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Source: SELF

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