



Source: FRES

Sustainable Energy in Central Asia: Business Opportunities and Technology Transfer (session III)

Energising Rural Areas: Off- and Mini-grid Solutions

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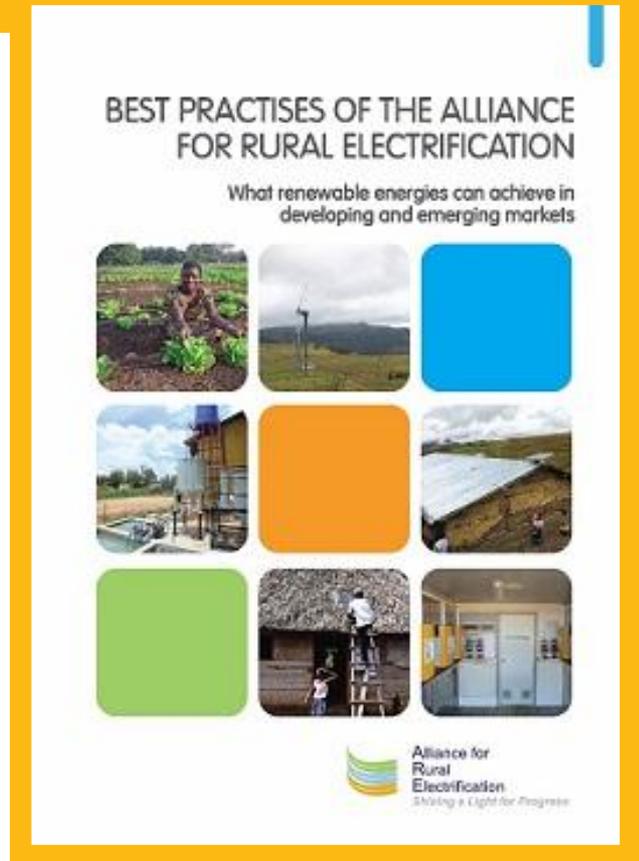
Agenda

1. Introduction to ARE mission
2. RE Rural electrification business cases
3. Way forward



Who we are, what we do

- International business association representing the **decentralised energy sector** working towards the integration of renewables into **rural electrification markets in developing and emerging countries**
- Enabling improved energy access through business development support for more than 90 members along the whole value chain for off-grid technologies by **targeted advocacy** and facilitating **access to international and regional funding**
- Global platform **for sharing knowledge and best practices** to provide for rapid implementation of available and advanced RE technologies and services



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Members from industry, academia and public sector



Strong partners

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

Selected international organisations with which we have formalised cooperations



How we work

2013 <i>(Focus on Africa & Latin America)</i>		2014 <i>(Focus on Latin America & Asia)</i>		2015 <i>(Focus on Asia & Africa)</i>	
1 st Semester	2 nd Semester	1 st Semester	2 nd Semester	1 st Semester	2 nd Semester
Small Wind	Energy Storage	Small Hydropower	Mini-grids	Bioenergy	Hybridisation & Power Components

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.



Case study Rahimafrooz



- **Who?** Rahimafrooz Renewable Energy, a renewable energy solution provider from Bangladesh. It manufactures high-quality solar modules and tubular plate solar batteries and has a very strong and successful track record in providing innovative RE solutions to address off-grid energy crisis both in and out of the country.
- **Challenge?** Provide economically sustainable and competitive irrigation to rural farmers. Before the farmers could grow two crops in a year (one by diesel irrigation and one by rainwater when available). The diesel price was unstable and sometimes very scarce.
- **Renewable solution?**
 - ✓ Solar powered submersible pumping system with buried pipeline network to manage water distribution more effectively.
 - ✓ The farmers are trained on effective cropping and water usage.
- **Project financing and costs?**
 - ✓ The financing of this project is 20% equity from sponsor, 40% soft loan (6% p.a.), 40% grant from donor.
- **Project outcome**
 - ✓ Farmers are growing 3-4 crops by rearranging the cropping time due to availability of water irrespective of rain and cheaper than diesel irrigation.
 - ✓ Cost of production is known beforehand due to known and stable cost of irrigation



Case study Wind Energy Solutions

- **Who?** Wind Energy Solutions (WES) is the Dutch manufacturer of WES50, WES80, WES100 and WES250 midsize wind turbines. WES turbines are also available in a hybrid solution and connected through SCADA, a remote monitoring system.
- **Challenge?** To **reduce diesel costs** and increase sustainability, the very remote island of Saint Helena bought six WES80 hybrid turbines
- **Renewable solution?**
 - ✓ The turbines (18m tower) will be delivered with the patented wind/diesel hybrid system on a turn-key project basis. WES will support the turbines on Saint Helena for the annual service and maintenance.
 - ✓ Integration of the turbine controls with the diesel generators to provide a total of 40% of the energy needs on the island due to the good wind conditions.
- **Project financing and costs?** The total investment of the order was approximately €1.8 million (around \$2.43 million).
- **Project outcome?** The yearly production of each turbine is around 240,000kWh. The fleet of now twelve WES80 will produce a total of 2.88 GWh per year. This saves 4,800 barrels (960,000 litres) of diesel oil compared to the previous situation. All inhabitants of Saint Helena will benefit from this renewable energy project.



Case study Studer Innotec



- **Who?** Groupe E and **Studer Innotec SA**, a Swiss manufacturer of high-quality inverters and inverter/chargers that provides outstanding performance and flexibility.
- **Challenge? Enabling a Nepalese hospital** in the Himalayas (Lukla), powered solely by hydropower, **to provide year-around healthcare**. Before it had to close in the winter and, even at full power, turn off power to parts of Lukla when the hospital needed to use e.g. the x-ray machine.
- **Renewable solution?**
 - ✓ Creation of a **hybrid system by adding solar power to the microhydropower plant**.
 - ✓ The local energy manager received five days of on-site training in order to manage the production and consumption of energy. This installation is practically maintenance free.
- Project **financing and costs?** The financing of this project is **100% covered by private funding** (the Swiss company Groupe E).
- Project **outcome?** Currently, the Lukla hospital provides year-round healthcare for its nearby community. People come from miles around for vaccinations, medication for children, family planning, dental care, etc. The hybrid energy production system combining hydro- and solar power has enabled the hospital to achieve **complete energy independence**.



ARE 2014 Highlights at a glance

When	Title	Location	More info
Jan-Jun	ARE Small Hydropower Campaign	global	link
21 Jun	IRENA GA / World Future Energy Summit	Abu Dhabi	link
24 Jun	EuropeAid meeting: “European Development Policy in the Energy Sector”	Brussels, BE	
12-13 Feb	2 nd High Level Meeting of the Africa-EU Energy Partnership	Addis Ababa, ET	link
3 Feb	European Investment Bank Board of Directors Seminar with Civil Society	Luxemburg	
21 Mar	RECP workshop: “Green Mini-Grids Opportunities for Rural Development in Africa”	Cotonou, Benin	link
31 Mar – 1 Apr	5 th EU – Africa Business Forum	Brussels, BE	link
9 Apr	ARE-Otti Workshop: “Clean Energy Hybrid Mini-Grids in Remote Areas – an Investment Opportunity”	Bad Hersfeld, DE	link



ARE 2014 Highlights at a glance

When	Title	Location	More info
14 Apr	IEA Workshop on the WEO 2014 - Africa Energy Outlook	Paris, FR	
15 May	EuropeAid – 2 nd Meeting with the Member States & Private Sector on EuropeAid Energy Programmes & Initiatives ‘EUEI Plus’	Brussels, BE	
21-23 May	Hydroenergia 2014 – Key note speech	Istanbul, TR	link
Jun-Nov	ARE Country Manager in India to support market development, technology transfer and capacity building (EBTC collaboration)	New Delhi, India	
2-6 Jun	Intersolar Europe	Muenchen, DE	Link
4-6 Jun	UN SE4ALL Forum: Launch of HIO Mini-Grids	New York, USA	link
16-17 Jun	2nd International Off-grid Renewables Energy Conference and Exhibition (IOREC 2)	Manila, PH	link
18 Jun	ARE Business Delegation to Asia	Manila, PH	link



ARE 2014 Highlights at a glance

When	Title	Location	More info
Jul-Dec	ARE Mini-grid Campaign	Global	
Aug - 2015	SE4ALL High Impact Opportunity on Mini-grids: ARE to carry out mapping of donor and practitioners' worldwide activities		link
20-21 Aug	5th World Renewable Energy Technology Congress & Expo-2014	New Delhi, IN	link
29 Sep	HNU-ARE-GIZ Study on Risk Mitigation for Mini-grids	Global	
29-30 Sep	EuropeAid: 'EMPowering Rural Electrification - The EU Framework for Access to Sustainable Energy'	Brussels, BE	
30 Sep	ARE Energy Access Seminar 'Meet the Experts'	Brussels, BE	link



ARE 2014 Highlights at a glance

When	Title	Location	More info
13-14 Oct	Italy-Africa: Working Together for a Sustainable Energy Future: EU launch of Mini Grid Policy Toolkit	Rome, IT	link
6 Nov	European Commission: "Sustainable Energy in Central Asia: Business Opportunities and Technology Transfer"	Brussels, BE	link
20 Nov	AEEP Energy Dialogue Event & Africa launch - Mini Grid Policy Toolkit	Nairobi, Kenya	
18-19 Nov	Africa Mini Grids Summit	Nairobi, Kenya	link
18-20 Nov	Intersolar India: Keynote speech	Mumbai, IN	link
4 Dec	RECP – RE Private Sector Cooperation Kick-Off	Brussels, BE	link



ARE 2015 Outlook

When	Title	Location	More info
Jan-Jun	ARE Bioenergy Campaign	Africa-Asia	link
Jan-Mar	RECP: ARE to implement to scouts to scope RE project opportunities in African countries (tbc)	Africa	link
Jan-Dec	Africa-EU Energy Partnership – ARE collaboration (tbc)	Africa-EU	
Feb	1 st Africa SE4ALL Forum	Tanzania	
Mar	ARE General Assembly	EU/Africa/Asia	link
25-27 Mar (tbc)	Rockefeller Foundation: HIO Clean Energy Mini Grids – interim results of mapping exercise	Italy	link
Jun	2 nd SE4ALL Forum	New York, US	
Jul-Dec	ARE Hybridisation & Power Components Campaign	Africa-Asia	link



Way Forward: Engage with Us

- ✓ **Build your business case with ARE: You are welcome to make us of lessons learnt in electrifying rural areas successfully**
- ✓ **Our members can help you develop renewable energy in Central Asia**, building on their extensive expertise and broad coverage of renewable energy technologies and services
- ✓ Feel free to **share business and procurement opportunities** as well as **market information**
- ✓ We are open to discussing **partnerships on the regional and/or national level** e.g. to scout for project opportunities and help create new ones, to facilitate market access in Central Asia,...



→ ARE helps public and private organisations develop sustainable rural electrification markets for the benefit of beneficiaries and supporters

We look forward to meeting you at Intersolar
Mumbai on 18-20 Nov 2014!

Alliance for Rural Electrification

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