Energy Access for the Urban Poor

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ARE Board Member
Managing Director GE Ventures and Licensing India

Asia Clean Energy Forum
Manila, 6 June 2018

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Established in 2006 and since summer 2017 **Proud Partner of SEforALL**, the **Alliance for Rural Electrification (ARE)** is the only global business association that represents the whole **decentralised renewable energy sector for rural electrification in developing and emerging countries**.

Roughly **1 billion people** – or about 13% of the world’s population – live without electricity ([IEA, IRENA, WB: 2018](#)), ~87% live in rural areas. ARE works to enable access to affordable, secure and clean energy and energy services for these people.

As the off-grid matchmaking and knowledge sharing hub ARE provides RET and sustainable business solutions on the ground worldwide. With its concept of **Productive Use of Renewable Energy (PURE)**, ARE creates win-win situations for communities by combining international expertise and investment power with local contents and skills development for the benefit of socio-economic development.

ARE currently unites 150+ committed and passionate companies active worldwide. Find out more about which ARE Members are active where with the **ARE Off-grid Matchmaking Platform**.
Members (end of 2018: 151 / +41)
ARE market access services in Asia

- 2/3 of ARE Members based in Europe, 1/3 based outside of Europe

- 55% of ARE Members active in Asia, 19 Members based in Asia

- 2/3 of ARE Members focusing on mini-grids, PV, energy storage

- More info: Off-grid Matchmaking Platform

ARE MULTISTAKEHOLDER APPROACH

- Knowledge Sharing & Promotion of Members’ expertise

- Policy Dialogue & Advocacy

- Private Sector Cooperation & Match-Making

- Capacity Building & Training

- Finance Access & Funding
ARE Partnerships & Projects

ARE partners with international and national organisations, projects and initiatives, the media and other industry platforms.

Commercial Partners

Knowledge & Support Partners
ARE Mission Statement:
Building on SDG 7, ARE is there to enable its Members building a 21st century sustainable decentralised renewable energy industry, activating markets for affordable energy services, and creating local jobs and inclusive economies.

ARE objectives:
ARE will measure its future success on a sectoral/geographical basis using the broad metrics of:
• Addition of quality rural off-grid connections (homes / businesses / community / public)
• New distributed energy investments (partnership with/through ARE Members)
• New / improved local economic activity and jobs through energy access

ARE Workstreams and Focus Areas:
1. Global Voice – “speaking as one cohesive team” (Contact: Ling Ng)
2. Global association acting locally - “global partnerships working locally” (Contact: David Lecoque)
3. Powerful partnerships – “strength in numbers and common learning” (Contact: Jens Jaeger)
4. Fundraising – ”leveraging our Member base to unlocking capital” (Contact: Marcus Wiemann)
Mlinda (Partners: Mlinda Charitable Trust, Vertéole)

**Project title:** Scalable, replicable, clean rural electrification in Jharkhand, India

**Project budget:** 460,974 USD; **Final grant amount:** 224,422 USD

**Project Description:** Installation of three new hybrid mini-grids in three rural villages in India (Narotoli, Sahitoli, Pasanga)

**Details (project fully implemented one year ahead of 24-months time plan)**
- 81 solar panels of 300 watt peak capacity each, installed in Pasanga village
- 90 solar panels of 250 watt peak capacity each, installed in both Narotoli and Shahitoli villages
- Three 15 KVA diesel gensets (one in each village) installed
- 358 households connected (24/7 provision of electricity)
- 61 commercial outlets (poultry units) connected
- 57 productive users connected
- 65 direct and indirect jobs created within local communities
- Income increase of 10.6% in the villages, as a result of electricity connection
Why become an ARE Member?

**Market your solutions** to more than 50,000 off-grid contacts (e.g. via ARE newsletter, case studies, matchmaking platform; job platform)

**Access the most recent market information** via ARE weekly alerts every Friday with off-grid news, procurement and tender opportunities, event discounts and job opportunities


**Access markets & finance** via ARE Partners and Members (case study: ARE-OFID project)

**Get direct value for money** via ARE event partnerships and exhibition discount offers

**Influence policy** via ARE and help shape the direction of decentralised renewable energy market in the future
How to become a Member?

Join ARE before 30.06.2018 and benefit from 50% discount!

Step 1: Fill in the ARE Membership Form and send it back to j.jaeger@ruralelec.org
Step 2: ARE Board of Directors to evaluate application and send response within a week
Step 3: Payment of annual ARE Membership fee

<table>
<thead>
<tr>
<th>TYPE OF MEMBERSHIP</th>
<th>Annual turnover</th>
<th>Annual fee</th>
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<tbody>
<tr>
<td>Full Member</td>
<td></td>
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</tr>
<tr>
<td>&gt; 45 Mio. €</td>
<td>6,000 €</td>
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<tr>
<td>&gt; 5-45 Mio. €</td>
<td>3,000 €</td>
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<tr>
<td>&lt; 5 Mio. €</td>
<td>1,500 €</td>
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<tr>
<td>Based in Africa, Asia, Latin-America</td>
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<td></td>
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<tr>
<td>(&lt; 2.5 Mio. €)</td>
<td>1,000 €</td>
<td></td>
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<tr>
<td>Start-up²</td>
<td></td>
<td>500 €</td>
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<tr>
<td>Associate Member³</td>
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<td></td>
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<tr>
<td>Financial institution</td>
<td>2,000 €</td>
<td></td>
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<tr>
<td>Academia, non-profit organisations &amp; NGOs</td>
<td>1,000 €</td>
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GE Renewable Hybrid Power Solution

Modular, containerized, digitally-connected power solution for off-grid electrification

Features

• 20-foot enclosure with pre-configured components - diesel gen, storage, protection & control + power electronics—simply connect distribution lines to begin exporting power

• Easy external DC connection point for solar arrays

• Hybrid controller prioritizes renewable power to lower operating cost

• Cloud-enabled monitoring and diagnostics using Predix™ allows for remote supervision across multiple installations

• Temperature-controlled compartments ensure components remain at optimal operating conditions

• Quickly increase capacity either by paralleling multiple systems or adding incremental solar and energy storage

• Optional equipment includes weather monitoring—integrated into the solution's remote monitoring system—as well as interior/exterior lighting

Benefits

• Lower installation and commissioning time and expenditures

• Reduced operating cost and emissions versus diesel systems

• Quickly scale output to capture growing demand

• Achieve higher uptime, identifying issues before they cause unplanned downtime

• Enhanced ability to monitor and control multiple installations

• Operate reliably through a variety of environmental conditions

• Enhanced ability to monitor and control multiple installations

Ideally suited to provide reliable power to a single village or cluster
Energy access for the Urban Poor

Energy access is generally regarded as a rural issue, but the **urban poor** are also affected by lack of energy and poor electricity connections. About 13% of those without energy access (1 billion +) live in urban areas. This adds up to more than **130 million people globally in urban areas without energy access**.

Most of these live in slums in emerging countries. South Asia and Sub-Saharan Africa have the fastest growing urban populations in the world—projected to grow by 50 percent by 2025 ([ESMAP](https://www.esmap.org)).

**Communities** in peri-urban and poor urban areas often face similar issues as rural ones such as lack access to legal, safe, reliable and affordable electricity, especially as many people are not officially registered.

They also face security challenges by not having access to **street lighting** in the night.

In many cases, decentralised renewable energy solutions can therefore deliver reliable and affordable energy (e.g. with solar power).
ARE Case study: Solar street lights in Durumi, Nigeria

The Challenge

Durumi is a suburb district of Abuja, the capital city of Nigeria, which has about 2,5 million inhabitants. Electricity access is poor and no street lighting was previously available in area. The climate is warm and humid in the rainy season and as high as 40 °C in the dry season, which provides challenges in providing street lighting for increased security.

The Solution

ARE Member, Schneider Electric, installed 70 Sunna Design (also an ARE Member) UP2 streetlights throughout the district.

Sunna Design has developed and patented a breakthrough technology for Solar Streetlights that offers resistance to extreme climates. In operating conditions, these products are capable of guaranteeing 10 years of lighting service throughout the night, thanks to an architecture combining a Nickel based battery and a Smart Energy Management System.

The lighting service lasts all night long and does not suffer from blackouts.
## Upcoming ARE activities in Asia in 2018

<table>
<thead>
<tr>
<th>Partner</th>
<th>Activity</th>
<th>Location</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>BVES</td>
<td>Energy Storage China: ARE Microgrid Session</td>
<td>Tangshan, China</td>
<td>19 Sep 2018</td>
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<tr>
<td>ASEP</td>
<td>B2B Mini-grid Forum Manila (tbc)</td>
<td>Manila, Philippines</td>
<td>19-21 Sep 2018</td>
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<tr>
<td>IRENA</td>
<td>International Off-grid Renewable Energy Conference (IOREC IV) 2018</td>
<td>Singapore</td>
<td>31 Oct-1 Nov 2018</td>
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<tr>
<td>Intersolar</td>
<td>Intersolar India: Off-grid Workshop</td>
<td>Bangalore, India</td>
<td>11-13 Dec 2018</td>
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To learn more and to join our activities, please contact: j.jaeger@ruralelec.org
We look forward to see you at the International Off-Grid Renewable Energy Conference (IOREC IV) in Singapore (31 Oct – 1 Nov 2018)
Objective: to identify / to implement up to 2-5 mini-grid installation / hybridisation in the developing world within 24 months

OFID Support: Grant of USD 990,000 to assist in de-risking mechanism for business ventures

ARE through its Members implemented a ready-for-purpose working structure

<table>
<thead>
<tr>
<th>Milestone</th>
<th>Date</th>
<th>Result</th>
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<tbody>
<tr>
<td>OFID – ARE Signature MoU</td>
<td>4 Nov 2014</td>
<td>✓</td>
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<tr>
<td>ARE Publication of Call for Proposal</td>
<td>10 Febr 2015</td>
<td>✓</td>
</tr>
<tr>
<td>Deadline for submission of applications (11 applications received)</td>
<td>17 Apr 2015</td>
<td>✓</td>
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<tr>
<td>ARE Administrative Assessment Report</td>
<td>29 Apr 2015</td>
<td>✓</td>
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<tr>
<td>ARE Evaluation Report</td>
<td>08 Jun 2015</td>
<td>✓</td>
</tr>
<tr>
<td>ARE Grant Application</td>
<td>19 Jun 2015</td>
<td>✓</td>
</tr>
<tr>
<td>OFID Governing Board Decision (4 projects approved; grant contracts signed in Nov 2015)</td>
<td>19 Jun 2015</td>
<td>✓</td>
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IOREC IV (Singapore, 31 Oct – 1 Nov 2018)

The International Off-Grid Renewable Energy Conference (IOREC) is the global platform dedicated to sharing experience, sharing best practices, identifying synergies and forging partnerships in off-grid renewable energy.

Building on the success of the earlier editions, the 4th IOREC is expected to once again attract experts from around the world and across the off-grid renewable energy value chain.

To get involved, please contact: Ling Ng

http://iorec.irena.org/