



Source: Trojan Battery Company

## EICC Trade and Investment Partnership Summit (TIPS) – *India's rural off-grid renewable energy markets*

European Parliament - October 16, 2013

Ernesto Macias,  
ARE President

# The off-grid market: a land of opportunities

*"We are proud to be a member of the Alliance, which brings together energy professionals since 2006 to address a fundamentally important global issue, especially in this year of 'Sustainable Energy for All'. There is a great deal of talk about rural electrification, but ARE is doing something about it."*

*Ernesto Macías, CEO, WonderEnergy, President of ARE*



# Agenda

- 1. Reasons to engage in off-grid RET**
- 2. ARE Background: Leveraging our impact through synergies**
- 3. India: RE Potential to be tapped**
- 4. Conclusions to step forward:**

RE = rural electrification

RET = renewable energy technologies



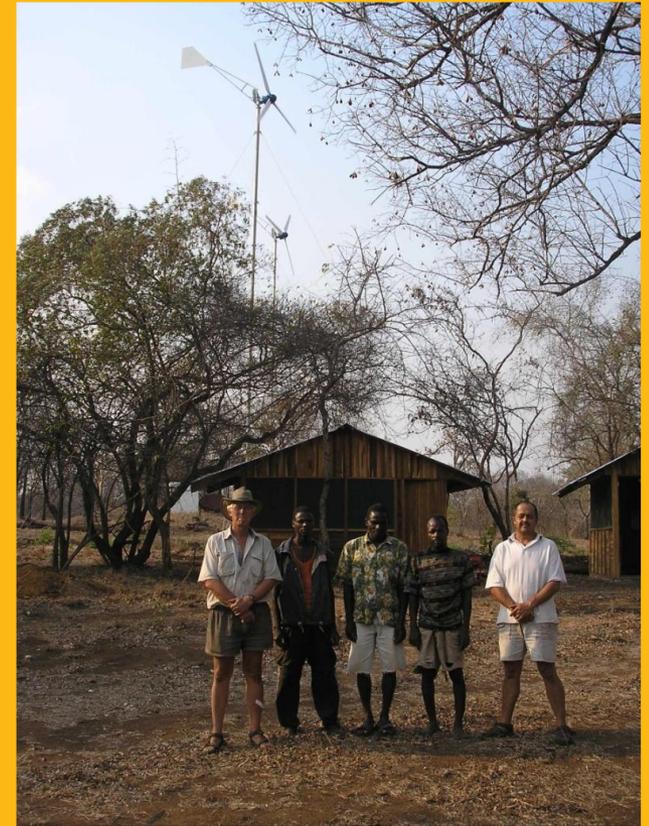
# Reasons to engage in rural electrification

- **Electricity fundamental** for socio-economic development (IEA, 2011)
  - 1,3 billion people un-electrified, most of them rural in Africa and Asia
  - 1,0 additional billion is under-electrified
- **Positive 2030 outlook** for off-grid clean rural electrification
  - 60% of new 952 TWh generation capacity to achieve universal access to electricity by 2030 will be off-grid (UNF, EAPN, 2012)
  - Off-grid RET business models ready to be upscaled and replicated
- **Positive RET financing climate to continue** in developing countries
  - 2012: \$112 bn out of \$244 bn RET investment took place in the south with a focus on developing countries (sources: UNEP/FS/REN21).
- **Promising political momentum** as shown by post-2015 SDG agenda and numerous country electrification programmes.



# Leveraging our impact through synergies

- We are the international business association representing the full value chain of **off-grid renewable energies technologies for rural electrification**.
- It is our objective **to better position the private sector and to enable business developments in developing countries and emerging markets**
- We serve as a global platform for sharing knowledge and best practices **to enhance energy access** (e.g. biogas, hydro, solar, wind) **and services** (e.g. lighting).
- We enjoy **an increasing membership** with ten new members in 2013; overall more than **75 members** from industry, academia and public sector.



Source: Fortis Wind



# Since creation seven year of proven success stories - ARE Secretariat services lines -

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

## Public Affairs support

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

## Business & Intelligence Support

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

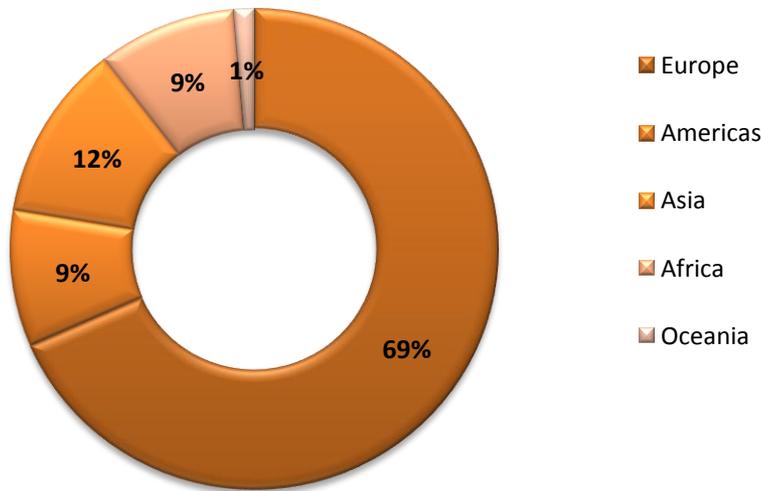
## Administration and Services

First-hand sector information, sharing competencies and best practices, membership management, project and meeting activities, individual requests.

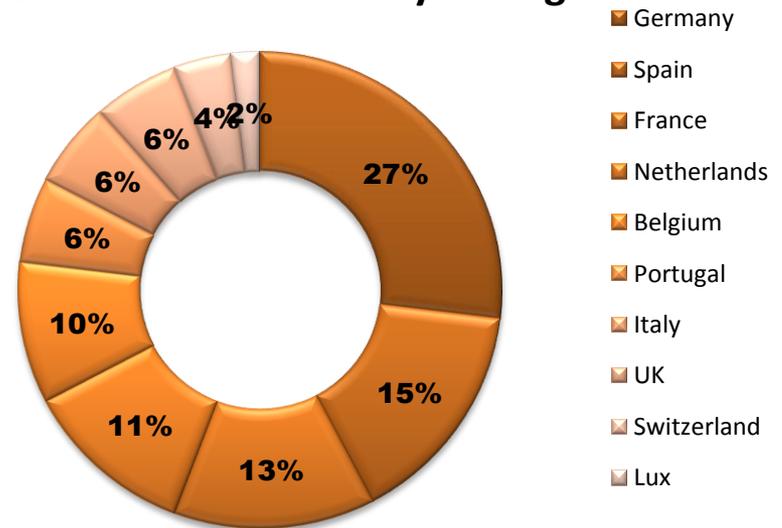


# Origin of ARE members

Members' country of origin



European members' country of origin



Europe	Americas	Asia	Africa	Oceania
52	7	9	7	1

DE	E	F	NL	B	I	UK	CH	LU
14	8	7	6	5	3	3	2	1

ARE currently has **4 members based in India** and many others operating in the country and the Asia-Pacific region.

# ARE with intelligence for full value chain of rural electrification



# Strong partners

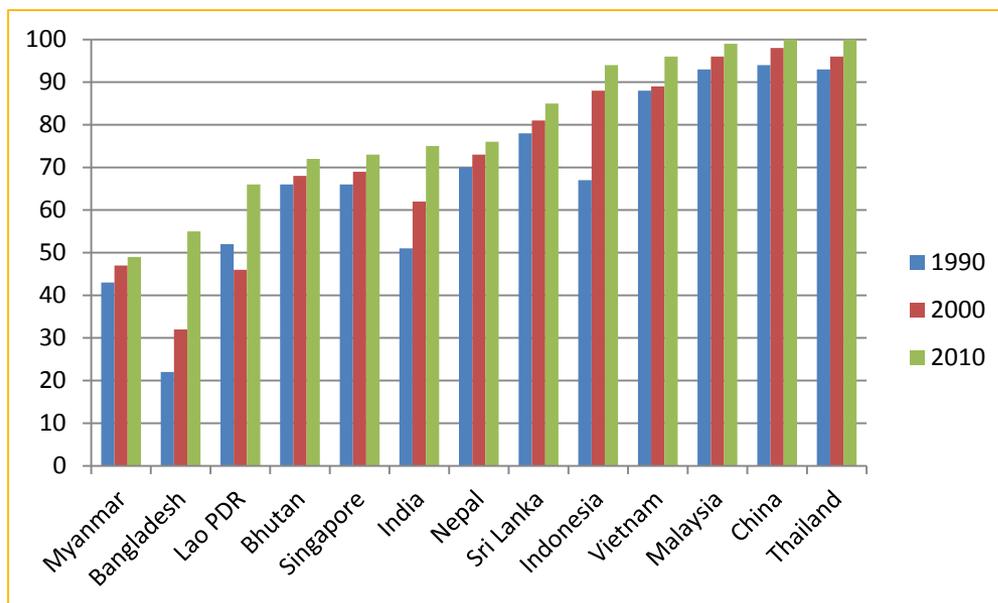
We partner with **international organisations and research institutes (e.g. Berkely Rural Energy Group)**, **projects and initiatives, the media and other industry platforms**, as well as support a wide variety of activities that place us in a privileged position in the world of rural electrification.

## Selection of current partners

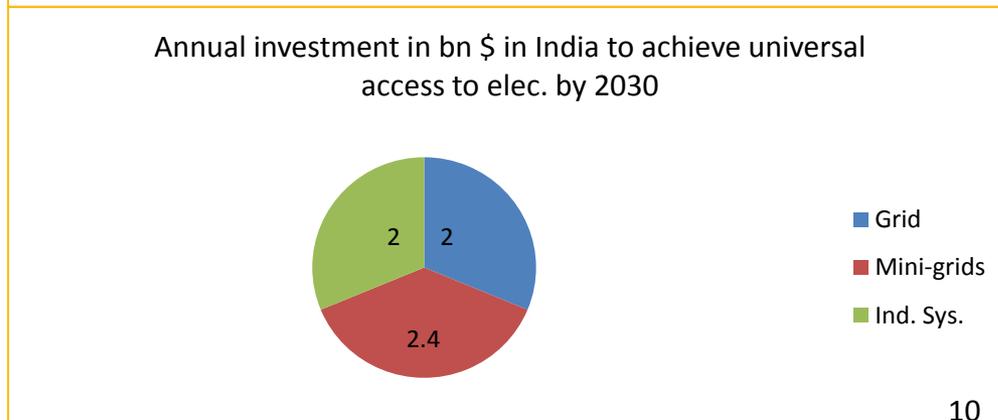


# India biggest niche in absolute numbers

- World's largest pop un-elec.
  - 289 m / 268 m rural
- Average elec° rates
  - Total 75% / Rural 67%
- Fast elec° trends
  - 1990 – 51% / 2010 – 75%
- Weak grid / Capacity: 227 GW (per Aug 2013)
- \$6.4 bn needed to elec India
  - \$4.4 bn off-grid



Source: Global Tracking Framework, 2013



Source: IEA, WEO 2011



# State and potential of India's power sector

- Vast fast growing market with the capacity to influence global market
  - 2<sup>nd</sup> contributor to growth of global energy demand (18% by 2035)
- India has not enough fossil energy reserves to cover for its power generation needs. Thus, increasing energy imports.
  - Expansion plans: focus on diversifying its energy mix (inc. RETs)
  - 12th Five-Year Plan (FYP 2012-17) expansion of RETs of ~30 GW.
- India high renewable energy potential and mature market
  - In 2013, 27 GW of RETs installed capacity (16 GW only for wind)
  - Total Renewable Elec target: 53 GW (2017)



# Indian market for small scale RETs

- Off-grid Solar target: 2,000 MW (2020)
  - 20 M Solar Lighting Systems (2022)
- Already installed:
  - 510,877 SHS, 767,350 Lanterns, 82,384 SLS and 7,247 SP
  - Min of New and Renewable Energy - Solar PV Demonstration Prog.
  - Other programmes: JNNSM, RGGVY, RVE etc.
- SHP (up to 25 MW): Potential 15 GW – 3 GW installed capacity in 2011
  - Min of New and Renewable Energy - 50% subsidy
  - Indian Renewable Energy Development Agency - loans
  - Alternate Hydro Energy Centre (AHEC) - quality infrastructure control
  - State regulators set specific tariffs.



# ARE's triggers to enhance business development

## Young markets with SMEs / MNCs ready for upscaling & replication

1. Coherent approach of public & private sector interests from the start
  - **Need for design of transparent markets, smart regulatory frameworks and coordination of activities**
2. Leveraging impacts by blending resources and reducing transaction costs through upscaling and replication
  - **Need for risk mitigation mechanisms and grants / credit lines**
3. Applying proven best practices and available business cases
  - **Need for training and awareness creation schemes for market preparation**
4. Making use of existing business opportunities to enhance further business options
  - **Need for transformation of public support schemes into market intelligence and development**



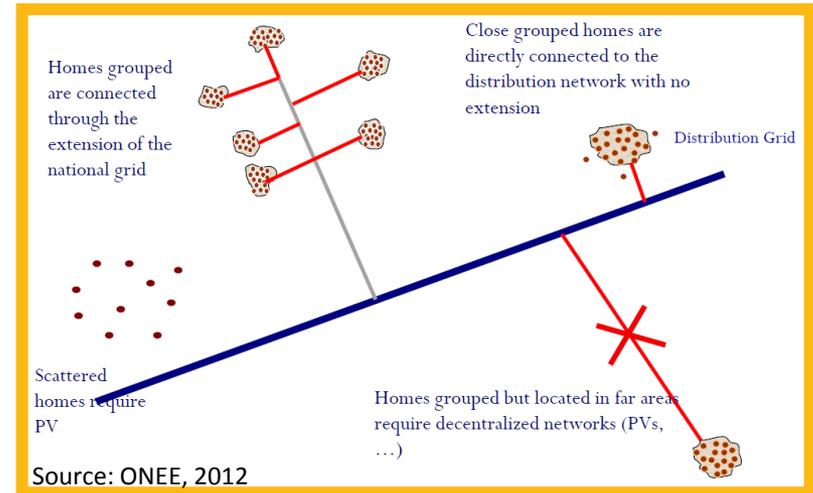
# ARE focus on innovative technologies (1/2)

## Individual systems

- Capacity ~200 Watts
- Isolated households
- Access to basic power services

## Mini-grids

- Generally capacity up to 500 kW
- Isolated villages and industrial sites
- Access to advanced power services



TTA Solar Microgrid in Cape Verde

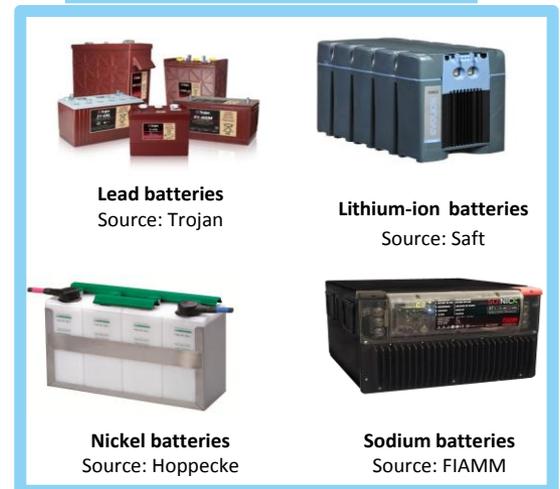
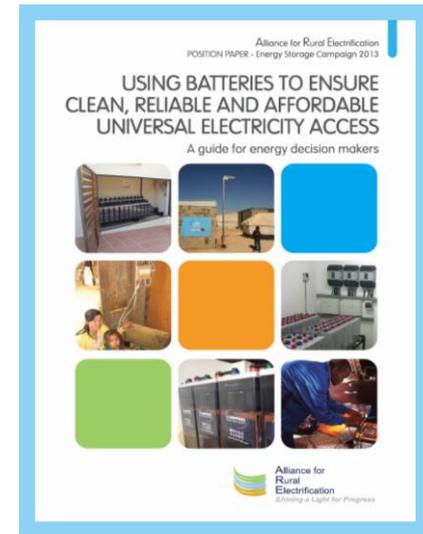


SHS Mobisol



# ARE focus on innovative technologies (2/2)

- **ARE Energy Storage Campaign** (until end 2013)
- **Objective:** Inform on the important role of ES in off-grid RET systems
- **Main roles:**
  - Allow deeper penetration of RETs
  - Reliable and affordable elec.
- **Types :**
  - Electro-chemical batteries
  - Chemical: hydrogen and biomass
  - Mechanical: Hydro



# Conclusions to step forward

- Well established framework stimulating the sector's development
  - Integrated approach (covering all technologies)
  - Technology specific institutions & support schemes
  - Focus on stimulating private sector development
  - Local capacity to manufacture and develop infrastructure
- Need to further stimulate private sector development:
  - Capacity building to state and local public actors (on regulatory aspects of off-grid RETs) .
  - Assistance to local banks and microfinance institutions (on finance aspects of off-grid RETs)
  - Private sector development (Provision of market and finance information and facilitation of partnerships)
- ARE to actively contribute to EBTC work programme 2014
  - Offgrid market report state level: Developing, tools, guides, models
  - Capacity building: Off-grid training



# Thank you very much for your attention

Interested in receiving our  
Newsletter?  
Send us an e-mail:  
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Source: Phaesun

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