Editorial

Ernesto Macias
ARE President

RECHARGING ARE

Dear friends of Rural Electrification,

As President of the Alliance for Rural Electrification, I am delighted to sign my first Editorial of the Newsletter. To enhance business development, this issue is devoted to energy storage, a very hot topic not just in ARE’s agenda, but also in the debate on how to achieve universal access to clean, affordable and reliable energy.

The Alliance truly believes that energy storage is an important element to ease the path towards deeper penetration of renewable energy technologies by ensuring reliability, efficiency and price-competitiveness of electricity services. Therefore, we have launched a six-month campaign to inform decision makers in developing countries and emerging markets on the added value of using storage technologies in off-grid renewable energy solutions and as grid backup for rural electrification.

As kick-off of this initiative, we celebrated a very successful workshop at Intersolar Europe to present the position paper Using batteries to ensure clean, reliable and affordable universal electricity access. The document includes useful recommendations, applications of the different types of battery technologies, as well as successful case studies from India, Bangladesh, Jordan, Peru
and Mozambique. Also, some of our members gave insightful presentations on energy storage based on their experience with rural electrification.

As you will learn from this Newsletter, upcoming activities in the framework of the Energy Storage Campaign will include a webinar co-organised with the UN Foundation and the participation in several high level events, among others. Energy storage is a fascinating topic and, to give proof, our sponsor Trojan Battery, our member Sunna Design and the International Polar Foundation will tell us how they have relied on batteries to successfully implement their projects in such diverse locations as the United Arab Emirates, Jordan or the Antarctic.

Finally, I would like to use this opportunity to highlight that this campaign is not an isolated initiative, but one important element of the new mid-term ARE concept implemented recently. To better position the industry and to enhance business development outside Europe the Alliance will target all the main geographical areas on a yearly basis and different types of renewable energies and technology for rural electrification every six months, starting with Latin America and energy storage in July.

All interested stakeholders are very welcome to support ARE in its efforts to further promote rural electrification development. Therefore, please feel free to forward this newsletter to potential new friends of the Alliance who are invited to contact the Secretariat for further information about our upcoming activities.

Thank you very much,
Ernesto Macías

In Focus

INTERNATIONAL POLAR FOUNDATION AND THE FIRST “ZERO EMISSION” POLAR RESEARCH STATION

Conceived, created and operated by the International Polar Foundation, the zero emission polar research station Princess Elisabeth Antarctica was designed and built to respect the letter and spirit of the Madrid Environmental Protocol to the Antarctic Treaty, which provides for comprehensive protection of the Antarctic environment and dependent and associated ecosystems.

But the project went much further: Princess Elisabeth is the world’s first Zero Emission polar research station; the evolving technical prototype welcomes scientists from around the world, providing solid logistics backup while they conduct research in a pristine & little-studied environment.

Powered by wind and solar power, and designed to high energy-efficiency standards, Princess Elisabeth Antarctica minimises energy loss while optimising energy use through a revolutionary smart grid. The station’s seamlessly integrates passive building technologies, renewable wind and solar energy, water treatment facilities and continuously monitored power demand. This drastically cuts
the amount of diesel transported to the station each season. The Foundation is currently exploring ways of powering its Antarctic vehicles using renewable energy.

Renewable Energy

Princess Elisabeth Antarctica harnesses 24-hour Antarctic summer sunshine and wind gusting from the plateau to fuel the station’s photovoltaic and thermal solar panels and nine wind turbines.

Smart Grid

Working closely with partners Schneider Electric and GDF Suez (Laborelec), the International Polar Foundation team developed a smart grid more than three times more efficient than other known microgrids. At a given level of energy production, most smart grids can deal with three times more than the installed consumers; Princess Elisabeth Antarctica’s system can deal even with up to ten times, although not all potential consumers are ‘on’ 100% at the time. The smart grid ensures that electricity harvested from wind and solar is prioritised for use in the station’s life support and safety systems, and that its occupants learn to use energy wisely. Smart energy management ensures that more can be done with less.

Energy Storage

Energy generated by the station’s turbines and solar systems is delivered straight to the smart grid for immediate usage. When there’s surplus energy, it is diverted to the station’s batteries. Electricity storage is constant challenge for the renewables sector, and at Princess Elisabeth Antarctica, the technical team constantly looks for new ways to optimise battery use.

Passive Building

Princess Elisabeth Antarctica is also designed to minimise the energy demand; for instance, the station’s shell has a layered design, maximising both heat distribution and energy use. Despite freezing temperatures outside, to generate heat the station uses only incoming sunlight and the heat produced by both human beings and the station’s electrical appliances.

Water Treatment

Ideally located for obtaining fresh water, Princess Elisabeth Antarctica was designed to use as little as possible of this precious resource. Thanks to a space-station-inspired water treatment system, water is purified and re-used for the showers, the toilets, and washing machine. Excess water is thoroughly purified before final and safe disposal.

Goodwill and Collaboration

The success of Princess Elisabeth Antarctica demonstrates how the climate challenge can be met through goodwill and collaboration between civil society, business and governments. The project also proves how readily accessible technology can be harnessed to achieve a low carbon society, without compromising our collective or individual wellbeing.

The energy solutions perfected at Princess Elisabeth Antarctica are now being commercialised by the project’s technical partners for use in mainstream applications that will redefine energy use in our homes, offices and schools, and in every home, town and city across the world.
The Princess Elisabeth Antartica research station

**MEMBER ON THE FIELD**

**SUNNA DESIGN: BRINGING OFF-GRID PV LED STREET LIGHTS TO THE REFUGEE CAMP ZAATARI (JORDAN)**

Sunna Design is a French start-up created in 2010 in India after an experience with a local NGO dedicated to rural electrification. The company is operating from France and has clear expertise in Research & Development (R&D), marketing and commercialisation of solar LED street lighting.
products and solutions (mini-grids) adapted to tropical and cyclonic environment. Sunna Design has references in several developing countries in Asia and Africa.

The Challenge
The refugee camp Zaatari, managed by the United Nations Refugee Agency (UNHCR), is located 10 km east of Mafraq, Jordan. It was first opened on 2012 to host Syrians fleeing from the ongoing Syrian civil war. On the 5th of May 2013, the camp population was estimated at 178,000 refugees, making it Jordan's fourth largest city.

The lack of a lighting system undermined the security of the inhabitants. Regular blackouts due to the weakness of the Jordanian network made it impossible for the camp managers to provide reliable public lighting.

The Solution
Sunna Design was contacted to design an autonomous PV LED street lighting system that would ensure reliability while keeping the costs down.

The use of energy storage was crucial as the lighting is required during the night when PV panels are not producing electricity anymore. Batteries had to be placed on the top of the mast to avoid being stolen or vandalised. Once placed behind the PV panel, they were protected from the heat by a patent pending passive cooling system.

The project is divided into several phases of implementation, starting with the installation of 100 systems which was completed within one month. The first phase project budget amounted to 90,000€ and was funded by the French Ministry of Foreign Affairs. Sunna Design sold the equipment to the French NGO Electriciens sans Frontières (Electricians Without Borders), which donated and installed it in the refugee camp.

Systems are maintained by UNHCR. It is an easy process as no local training or specific infrastructure is needed. A maintenance contract is planned for PV cleaning and Sunna Design is in regular contact with the camp supervisors.

To tackle the challenges of this project, Sunna Design developed a new product: “iSSL hot”, standing for integrated solar street light with NiMH battery. The energy management is done by a proprietary battery and light management system which controls the charge and discharge of SAFT NiMH elements. These are small and light due to their high energy/power density, tolerant to high temperatures and maintenance-free during a 10-year operation period based on the following assumptions: 90% Depth of Discharge in tropical conditions considering a complete cycle per day.

Sunna Design has developed a calculator and an algorithm for reducing the sizing of its products, using a smart management of the lighting depending on energy availability. This R&D has been done
in collaboration with the French research institute CEA-INES and allows Sunna Design to guarantee a lighting service without blackouts during long period of bad weather.

The camp is growing at an average of 1,000 inhabitants per day. Thus, two new project phases have been already planned. Furthermore, another refugee camp is in construction in Jordan. As the new camp will be lit only with solar energy, Sunna Design is hoping to install more than 1,000 new systems with NiMH batteries and bring long lasting light and security to thousands of refugees.

For further information, visit this link.
ARE is proud to welcome its new members:

**OFF-GRID ENERGY AUSTRALIA**

**Country:** Australia  
**Website:** www.offgridenergy.com.au

Formed in 2010, Off-Grid Energy Australia brings together more than 20 years of specialist experience in designing and installing standalone power systems throughout Australia. Off-Grid Energy prides itself on delivering robust, reliable and technically leading and compliant technologies for Australian domestic and commercial applications.

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**News from the Alliance**

**RE LAUNCHED ENERGY STORAGE CAMPAIGN AT INTERSOLAR EUROPE**

Being an official Intersolar Europe Conference Side Event for the first time, ARE organised an Energy Storage Workshop on the 20th of June with the support of our sponsors Studer Innotec and Trojan Battery to launch the Energy Storage Campaign. Five of our members, experts from three different continents, presented successful case studies where batteries played a key role. After, the 80 participants enjoyed ARE’s traditional networking reception.

Furthermore, the Secretariat had the pleasure to share a stand with Rahimafrooz at the Exhibition area to answer the questions of those Intersolar visitors interested in learning more about ARE and the activities of our members.
Also, the Alliance joined the Intersolar Conference programme for the first year and Marcus Wiemann gave a presentation on the potential of off-grid PV technologies for rural electrification in developing countries.

Trojan Battery Company and Studer Innotec, sponsors of ARE side event at Intersolar Europe, giving their speech before the networking reception
Marcus Wiemann, during a meeting in Rahimafrooz's stand

Marcus Wiemann gave a presentation during the Descentralised Grid Systems session jointly with our members Michael Wollny (SMA), Brisa Ortiz (Fraunhofer ISE) and Andy Schroeter (Sunlabob)
We are honoured to announce that the International Renewable Energy Agency jointly with the German Federal Ministry for Economic Cooperation and Development has invited ARE as the only private sector representative to a high-level Experts Meeting in Bonn on the 11th of July. Representatives of the main German organisations dealing with green energy and development topics will discuss ways to increase the competitiveness of renewable energies in developing countries.

The Alliance is proud to become a supporting organisation of the 28th European PV Solar Energy Conference and Exhibition (EU PVSEC), which this year will take place in Paris from September 30th to October 4th. The EU PVSEC is the leading international conference for photovoltaic research, technologies and applications, and at the same time one of the top international PV industry exhibitions.

The 28th EU PVSEC gathers the PV community to conduct business, to network and to present and discuss the latest developments and innovations in Photovoltaics. It serves as the renowned science-to-science, business-to-business and science-to-industry platform for the global PV Solar sector.

The detailed Conference Programme has been published, featuring 85 Conference Sessions with 337 Keynote, Plenary, Oral and more than 1,300 Visual Presentations.

Under the guidance of EU PVSEC Technical Programme Chairman Dr. Arnulf Jäger-Waldau, European Commission, DG JRC, the Conference Programme is composed by the international Scientific Committee made up of more than 200 research and industry experts from the global PV sector, reviewing and scoring the 1,752 abstracts, that applied for presentation at this year’s EU PVSEC.

The Conference Programme is structured along the following main subjects:

- Material Studies, New Concepts, Ultra-High Efficiency and Space Technology
- Wafer-Based Silicon Solar Cells and Materials Technology
- Thin Film Solar Cells
- Components for PV Systems
- PV Systems
- PV – a Major Electricity Source

The Conference Registration is open. Register now to benefit from special early bird fees on www.photovoltaic-conference.com

Complementing the Conference Programme and the PV Industry Exhibition, 12 EU PVSEC Parallel Events offer a deep insight into specific topics along the most recent technology, market and business trends and address to global decision makers from industry, research, finance and politics.

Detailed information on the EU PVSEC 2013 Parallel Events will be published shortly.

THE ALLIANCE TAKES PART IN THE VIENNA ENERGY FORUM

ARE President Ernesto Macías joined the Vienna Energy Forum as panellist on financing mechanisms to achieve universal access to electricity. The event, which took place in Austria on May 28th-30th, was co-organised by the United Nations Industrial Development Organization (UNIDO), the Austrian Federal Ministry for European and International Affairs and the International Institute for Applied Systems Analysis (IIASA).

This year’s Forum brought together over 1600 policy makers, country delegations, experts and representatives from the private sector and civil society from 116 countries, to debate on sustainable energy and the way forward after Rio+20.

In the context of negotiating a new development framework, the key message of the Vienna Energy Forum 2013 clearly positions energy in the post-2015 development agenda and underlines the significance of financing and partnership in ensuring a sustainable energy future.
The EU Africa Chamber of Commerce invited Marcus Wiemann to be a panellist at the session on how to contribute to the sustainable energy market development in Africa during the Sustainable Energy in Africa Conference 2013. This event, celebrated in Brussels on the 27th of June in the framework of the EU Sustainable Energy Week, gathered various stakeholders including EU officials, African States officials, International funding organisations, African and European private sector as well as sustainable energy experts.
THE HEADQUARTERS OF THE EUROPEAN RENEWABLE ENERGY INDUSTRY OPENED ITS DOORS

The Renewable Energy House (REH), home of the ARE Secretariat, celebrated its Open Day on June 26th with the organisation of guide tours to those people interested in learning more about this exciting sector.

Elena Cantos, ARE Communications Officer, joined the event and discussed with numerous guests the importance of universal access to electricity and ARE activities towards achieving this ambitious goal in rural areas.

INTERNATIONAL WORKSHOP ON REPLICATION AND SCALING-UP OF DECENTRALISED OFF-GRID ELECTRIFICATION IN DEVELOPING COUNTRIES
As part of the activities of OASYS South Asia project, the De Montfort University in Leicester (UK) has invited the Alliance to give a presentation at the workshop Replication and Scaling-up of Decentralised Off-grid Electrification in Developing Countries on the 17th of June. The OASYS South Asia project is a research initiative that aims to develop innovative and participatory business models for decentralised off-grid electricity supply in South Asia to alleviate the energy access problem of the region.

WEBINAR: HOW TO MAKE THE MOST OF AN EVENT

During the ARE webinar organised for our members in the framework of the Communications Club, Kathryn Sheridan, CEO of Sustainability Consult, shared her experience to increase the impact of our members’ participation in international events and to optimise their investment. Among other topics, she explained different strategies and communications tools available to improve their visibility, to attract their target audience, to reach the media or to give a presentation.

About Sustainability Consult:

Sustainability Consult focuses on sustainability communications, media and strategy. Based in Brussels and operating globally, we help our clients define credible communications strategies, positioning and messages. We act as the global press office for clients and are a trusted source for the media worldwide. We work with companies on marketing communications and media and with trade associations and NGOs on policy communications and media. Our services range from a single press release or article to ongoing marketing communications and PR campaigns.

We provide tailored training including media, presentation and social media training. As well as media relations, we offer events and advertising support, design, media monitoring, video and social media. We work with our clients on the basis of shared goals and values.

Sustainability Consult is a member of 1% for the Planet and CEO Kathryn Sheridan is a 1% for the Planet Ambassador.

Sustainability Consult contact details:
25TH SESSION OF THE ACP-EU JOINT PARLIAMENTARY ASSEMBLY

The 25th session of the ACP-EU Joint Parliamentary Assembly took place in Brussels on June 17th - 19th 2013 at the European Parliament. To answer questions of interested parties, Luis-Carlos Miró Baz, ARE Policy Officer, represented the off-grid renewables sector with a stand in the exhibition area.

UPCOMING EVENTS

SOLAR POWER INTERNATIONAL, 21-24 OCTOBER, CHICAGO (US)
Solar Power International (SPI) is North America’s premier business-to-business event for professionals in solar energy and related fields.

MINI-GRIDS OPPORTUNITIES FOR RURAL DEVELOPMENT IN AFRICA WORKSHOP, 5 SEPTEMBER, ARUSHA (TANZANIA)

This workshop will be organised as a side event of the Workshop “Low cost on-grid electrification technologies” that will be held in Arusha on September 3rd - 4th 2013. The event is organised by WIP Renewable Energies on behalf of the Africa-EU Renewable Energy Cooperation Programme (RECP), in collaboration with The Africa Electrification Initiative (AEI), the Rural Energy Agency (REA) Tanzania, the World Bank, and the European Union Energy Initiative - Partnership Dialogue Facility (EUEI PDF).

Main workshop aims include:

- Share knowledge and experience on mini-grid technologies for applications in Africa
- Discuss critical success factors for mini-grid implementation in Africa
- Discuss recommendations and tools to improve the policy and regulatory framework for mini-grids
- Share knowledge and experience on best practice mini-grid applications
- Elaborate successful project development processes and operation models for mini-grids

For further information and registration, please contact Cosette Khawaja from WIP Renewable Energies including in cc. the ARE Secretariat.

RECENT PUBLICATIONS AND STUDIES

REN21’S RENEWABLES 2013 GLOBAL STATUS REPORT

First released in 2005, REN21's Renewables Global Status Report (GSR), supported by ARE, has grown to become a truly collaborative effort of over 500 authors, contributors and reviewers. It provides testimony to the undeterred growth of electricity, heat, and fuel production capacities from renewable energy sources, including solar PV, wind power, solar hot water/heating, biofuels, hydropower, and geothermal.
The Global Tracking Framework Report identifies countries with the greatest potential to make “high-impact” progress on sustainable energy and specifies policy measures to scale up action. The report compiled by experts from 15 agencies lead by The World Bank, is the first of a series to monitor progress towards the three objectives of the Sustainable Energy for All initiative, launched in 2011 by United Nations Secretary General Ban Ki-moon. The initiative, whose advisory board is co-chaired by World Bank Group President Jim Yong Kim, is mobilizing a global coalition of governments, private sector and civil society to achieve, by 2030, its three objectives of universal access, doubled renewables and doubled energy efficiency improvement.