

ARE NEWSLETTER APRIL 2012



A KIND THANK YOU TO OUR GRACIOUS SPONSORS.



Editorial

Simon Rolland
Secretary General

WINDS OF CHANGE

Wind energy currently supplies about 3% of global electricity needs, a small fraction of its potential. European countries are leading the way, with emerging and developing markets still playing a marginal role when it comes to overall installations of wind energy projects. At the same time, the market growth forecasts for the upcoming five years suggest that India, Brazil and other markets in Africa, Asia and Latin America will show the biggest increase and contribute the most to the sector's development.

We think it is the right time to emphasise the vast potential wind technologies have, and pay a particular attention to existing smaller-scale-solutions. Wind energy is not only a source for electricity generation: small-scale wind technologies help reach far-away communities in rural areas, thus helping to tackle a wide range of socio-economic problems faced in these remote locations.

Therefore, we are proud to devote this newsletter issue to wind energy. There is a lot of activity taking place in the off-grid renewables market in developing countries – by our members and other like-minded organisations and companies - and we would like to share some of these inspiring stories from the small-scale wind sector with you.

Our “In Focus” section features Green Empowerment, an NGO providing villages in the developing world access to clean water and electricity through renewable energy. This time we have a chance to learn more about one of its projects in Peru, where they are implementing innovative small-scale wind projects in Andean villages.

We also hear from ARE’s members. Zephyr Corporation, our first member from Japan, was established in 1997 and is now operating in over 40 countries worldwide, providing innovative off-grid wind energy solutions to rural communities. Wind Energy Solutions, a Netherlands-based wind turbine manufacturer, tells us more about its latest updates and benefits of distributed wind generation.

It is also our great pleasure to welcome three new members to ARE’s network – Ilumexico, Mobisol, and Rainer Lemoine Institute. We are looking forward to a long and successful cooperation.

Please take a look at the latest updates from the Alliance and a number of exciting events with our participation taking place during the next months. We are especially glad to invite you to the 1st International Off-grid Renewable Energy Conference, a high-level event organised together with ECREEE and IRENA.

Also, make sure not to miss the activities related to the Global Wind Day on 15 June, an initiative coordinated by ARE’s members EWEA and GWEC, involving thousands of public events organised in line with the Day. There is a lot on our plate for the upcoming months, stay informed and follow the news!

Thanks for reading and until next time,

Simon Rolland



In Focus

SMALL WIND TECHNOLOGY PROVIDING ELECTRICITY FOR RURAL PERUVIANS



green empowerment
Village Solutions for Global Change

Over 30% of rural Peruvians lack electricity, limiting opportunities and exacerbating poverty. Many of these off-grid homes dot the high Andes, making conventional grid extension difficult and costly. Yet these same rural mountain communities are blessed with a potentially huge source of energy: wind.

Green Empowerment, along with its in-country partners, has been providing these villages with access to clean water and renewable energy such as solar, micro-hydro, biogas and most recently, wind power. Green Empowerment has worked with its partner, Soluciones Practicas, to install a range of innovative small-scale wind projects in Peru, each with its own story of technological evolution and humanitarian impact. To further promote the whole field of small wind, an international WindWorks Symposium was organised recently to share information from these and other wind projects around the world.

Small wind projects can be an excellent option for off-grid communities. Wind turbines can be locally manufactured while solar panels are only manufactured in a few countries. The existence of local manufacturers has the added advantages of easing system maintenance and promoting local economic development. The life-changing benefits for rural families can be dramatic:

- Providing higher-quality lighting, replacing smoky kerosene lamps and candles;
Extending the productive hours of the day and allowing children to do homework;
- Increasing access to communication such as radio, television and cell phones;
Boosting the local economy by powering small machinery for local enterprises and local products;
- Improving health by refrigerating vaccines and powering medical devices;
Making computers for schools available
- Peru: Locally-made Wind Turbines from Andean Peaks to Coastal Deserts

Green Empowerment and Soluciones Practicas helped the people of El Alumbre to become the first community electrified entirely with small wind turbines in Peru. El Alumbre is home to 150 rural residents living in adobe homes dispersed in the high mountain grasslands, at the soaring height of 3800m (12,600 feet) above sea level.

But the story is best told by the people themselves: Edwin lives in El Alumbre. His family's house had been illuminated by candle and kerosene lights his whole life. He did his homework by candlelight blown out intermittently by the wind. Today, that same wind is not only lighting Edwin's home, but also powers a radio transmitter to broadcast music and make announcements across the valley. His school now has computers with digital encyclopedias, and his town's clinic has refrigerated vaccines, sterilisers and other equipment so that he can get medical care if he needs it.

Edwin's story is just an excerpt in the larger history of bringing wind power to Peru. In El Alumbre, 35 homes are equipped with IT-PE-100 wind turbines designed to produce 100 Watts at 5m/s, designed and built by Soluciones Practicas. The lights, vaccine refrigerator and medical equipment at the health post are all powered by a SP-500 wind turbine designed to produce 500W at 8m/s. Five computers in the school, with digital encyclopedias, are also powered by a SP-500 wind turbine. The community-based enterprise collects a tariff which pays for the trained local technician to maintain the wind turbines. More importantly, wind power is ushering in new micro-enterprises, radio communication, and a renewed commitment to tap into natural resources to regenerate the community.

In Alto Peru, another rural community at over 4000m (13,000 feet) altitude, four SP-500 wind turbines and solar panels are connected in two mini-grids that generate the energy, store it in batteries, and distribute it across the steep terrain to 13 homes, a church and a small general store. Electrical meters in each house gauge energy use for appropriate tariff regulation.

The latest wind project consists of an upgraded version of the SP-500 wind turbine, also developed by Soluciones Practicas, to provide power to an orphanage. This home, called Asociación Tarpuy, was founded by a teacher who had grown up in an orphanage and decided to find open land and build a home that would be more like a family. He established the home in the barren desert of Coastal Peru. The wind turbine now powers lights, cell phones, radio, a TV and a refrigerator for keeping food fresh. The next 2012 project will use a larger wind turbine, made by the Peruvian company Waira, to pump water to irrigate the fig orchards which provide a supporting income. Each turbine is outfitted with remote data logging equipment so project partners can watch the system's performance in real time, set alerts for performance issues, and learn how to improve the systems in the long run.

Expanding the Impact of Local Projects through International Networks

These pilot projects all contribute to a larger vision of strengthening the use of small wind power for rural electrification in developing countries. In December 2011, Green Empowerment and Soluciones Practicas hosted an International Symposium on Small Wind Energy with the support of the Wuppertal Institute for Climate, Energy and Environment. Over 100 people from 9 countries of the Americas, Europe and Africa attended to exchange experiences in building and using small wind turbines for rural development. Symposium attendees discussed site and technology selection, management concerns, maintenance considerations, and overall improvements to the small wind

development process. The Symposium included a public conference, visit to a wind tunnel for turbine testing, round table discussions and field visits to see different wind systems in action – from remote car repair shops and chicken farms to the off-grid orphanage. Green Empowerment is also working to develop wind projects with partners in Nicaragua and elsewhere. While small wind still faces challenges of site selection and maintenance, the opportunities are great for the many rural communities who have a lot of windy days and no power yet. To learn more and contribute to Green Empowerment’s work providing villages access to renewable energy, clean water and sustainable solutions, visit the website.

“We felt forgotten, here at this altitude and now, imagine, way out here in El Alumbre kids are growing up with computers, just like the cities.” /El Alumbre Committee Member



Children near a small wind turbine in Peru. Photo: Anna Garwood, Executive Director of Green Empowerment



Wind turbine in Peru

ZEPHYR CORPORATION

We talk to Mr Tomoya Endo, CEO and President of Zephyr Corporation, ARE's member from Japan.

Can you please tell us more about Zephyr Corporation, its main activities and objectives?

Zephyr was established in 1997 in Tokyo, Japan, specialising in small wind systems, and now we have 15 years of experience. Our main product is called the

Airdolphin, which is a 1kW turbine that was developed by a government-funded project team with members from the Japanese government, leading industry corporations, and the University of Tokyo – so the Airdolphin is pretty much a “Japan Inc.” product. We use the best materials possible, with precise engineering to provide a robust and reliable product that generates the best in class performance.



We have installations and representation in more than 40 countries around the world, but the market is quite different in the developed and developing world. The markets in the industrialized countries are more or less dependent on incentive programs and the “green” consciousness of the people and companies. On the other

hand, we know and have proven that in off-grid areas where extension of the grid is too expensive or not even planned, renewable energy, and particularly a no-maintenance product such as ours, can make a great business case.

One of your main markets is “decentralised independent power supply for areas with no commercial electricity such as mountains, oceans, remote islands”. Can you tell us more about the importance of off-grid solutions in these areas?

Some of the locations that we have worked on are hard-to-access locations, where the equipment has to be taken in small vehicles or boats. Our turbine is a very light and compact machine, totaling 20 kg with a blade diameter of 1.8m. That is a great advantage when you are trying to get to these remote places. Because of the location, grid extension is not planned, and people are living without power. The fundamental needs can be met with a small amount of power, such as, lighting at night, enabling higher productivity and study time for children, water purification, refrigeration for medication or local farming and fishing produce, mobile phone charging and telecom access, and even entertainment through radio and TV. Electrification can transform the lives of the people completely, raising the standards of living and giving them a platform for building a more prosperous living.

You have more than 14 years experience in the wind industry and your wind turbines have been installed in over 40 countries. What are the main challenges you encountered for the development of off-grid markets in developing countries?

We have been working with telecom companies in off-grid areas in developing countries, and the main challenge has been the integration into the existing system and testing of the reliability and durability, since most of the sites are in hard-to-access areas. For rural community electrification, the challenge is the upfront investment cost. Most projects are funded by governmental or financial institutions, often by tenders, which can take longer than private projects.

On your website you state your turbines are the lightest on the market today. Are they specially designed for off-grid systems?

They are not specifically designed for off-grid systems, but there is an advantage in being very lightweight - it can be easily transported and installed. If there is a suitable existing structure, it can be mounted on it, reducing cost. But more important, the product is maintenance-free. This is a valuable feature, because during the time it takes to get to the remote off-grid location, the community will lose power. Also, there is no need to have regular servicing except for periodical visual checks, which require no training.

Currently you are the only Japanese member of the Alliance. How do you see the interest of other Japanese renewable energy companies in developing markets?

Japan has a lot of technology that can be utilised in developing countries, and we are seeing more and more interest from other companies – not just manufacturers but trading and consulting firms, as well as finance. The government is also very supportive and has various funds and programmes especially for the BOP market.

Do you think the UN target of achieving universal access to modern energy by 2030 is realistic, and how do you expect the wind sector to contribute to this goal? From your perspective, how important is the role of private sector in this initiative?

I think we will all need to work much harder to reach the UN target by 2030. According to some reports, the population still without power in 2050 is actually expected to increase. We would like to contribute where we can, especially where there is wind! Our strength is to offer a total solution combining our small wind turbine with other renewable sources, such as PV and hydro.

The private sector can play a vital role in this initiative. Renewable energy is an economic solution in rural off-grid – a business case. Structure, regulation, and financing will help to drive the work. There are already good examples that are working well, and we should make use of those reference cases. In larger projects, consortiums may become necessary.



Transporting light-weighted equipment in remote areas



News from the Alliance

NEW MEMBERS IN THE ALLIANCE FOR RURAL ELECTRIFICATION:

ARE is proud to welcome three new members:



ILUMEXICO

Country: Mexico

Website: www.ilumexico.mx

Ilumexico, a social enterprise founded in 2009, started with the objective of developing solar technology for rural electrification. It works through government projects, alliances with NGOs and universities, micro-finance schemes and corporate social responsibility programmes. One of Ilumexico's success stories is lighting a school in San Pedro Cobalá, a Mexican village, and therefore having an impact on education, income, health and environment. Along with designing and manufacturing solar charge controllers for off-grid household applications, Ilumexico also provides workshops and courses that explain the use of electricity as a platform for development.

MOBISOL

Country: Germany

Website: www.plugintheworld.com

Mobisol is a young start-up founded in 2010 in Berlin. The organisation offers low-income customers without access to electricity an alternative to fossil fuel sources. By using mobile banking, Mobisol combines solar energy with a suitable repayment scheme.

The goal of Mobisol is to give customers affordable and environmentally-friendly solutions by circumventing the problem of high initial investment costs of off-grid schemes. This way, customers can pay for solar energy on a monthly basis and gain independence from the rising prices of fossil fuels.

REINER LEMOINE INSTITUT GGMBH

Country: Germany

Website: www.reiner-lemoine-institut.de

Reiner Lemoine Institut gGmbH, a leading research institute, supports the processes of long-term energy transition to 100% renewables by pursuing the research approach of system integration.

The Institut also provides local support for a new orientation towards climate protection. It works, together with the actors involved, on the individual steps of transformation scenarios for urban and regional areas.

NEW TRAINEE JOINS ARE

Our new Communications Trainee, Alexandra Antonescu, has joined the team in April for a period of 6 months. Alexandra comes from Romania and is currently obtaining a masters degree in “New Media and Society in Europe” at Vrije Universiteit Brussels. She is interested in renewable energy topics, media economics and online marketing. A warm welcome!

ARE PARTICIPATES IN THE GSMA MOBILE WORLD CONGRESS:

Michel Mansard, ARE’s Member of the Board and the Managing Director of Phaesun France, participated in the GSMA Mobile World Congress in Barcelona, Spain taking place from 27 February to 1 March this year. The event gathered around 67,000 participants from over 200 countries.

Michel gave a presentation on financing schemes for renewable energy technology deployment in developing countries, discussing the growing opportunities for the GSM sector.

More information about the event here.



News from the sponsor



WIND ENERGY SOLUTIONS: BRINGING RENEWABLE ENERGY EVERYWHERE

Established in 1983, Wind Energy Solutions (WES) is a Dutch privately owned wind turbine manufacturer, whose technology was acquired from Lagerwey worldwide and has been used for over 30 years. In the last decades, over 1000 turbines have been manufactured and installed. WES turbines are installed at all kinds of locations: high volume projects in countries with a feed-in tariff system or remote and hard-to-reach locations like islands and in rough terrains.

WES is working with dealers, contractors and /or project developers to provide turn-key solutions. These partners are trained at the WES factory and have access to all information needed to sell, install and carry out maintenance. Turbines are connected by a skada system for remote access and control. WES turbines are “medium-sized”, ranged between 50 kW up to 250 kW.

Customers include:

- Agricultural
- Small communities
- Schools
- Resorts
- Islands
- Remote locations

Ease of installation and maintenance

WES turbines fit in standard containers and trucks, so they are easy to transport globally. Since the WES turbines are two-bladed, they are easy to install. Only one crane is necessary, and the installation will take less than one week per turbine. Also, maintenance is not time-consuming. A check every 6 months is sufficient. As this maintenance is generally done by local contractors, long-term sustainable jobs are created.

Hybrid Solutions

Diesel generators are often used to produce electricity in remote areas with isolated grids. Electricity generated in this way is expensive. Besides the purchase price of diesel, there are other specific costs that have to be taken into account, such as transport and storage costs, and the cost of losses.

In addition, diesel generators are not very efficient and will generate about 3 to 4 kWh out of one litre of diesel. As a result, electricity price in isolated grids is high, sometimes up to 80 euro cents per kWh. The diesel generator will only generate electricity when the WES Hybrid system is not able to

deliver enough. WES designed an on-board crane for hurricane areas which can uninstall the blades within a few hours.

Distributed Wind Generation

- Small wind farms of just one or a few wind turbines have several advantages over traditional large wind farms: distributed wind, in many cases, has a lower cost to integrate into the existing grid than large wind farms;
- New turbine technology can add voltage and reactive power support to distribution feeders far from sub-stations; improving system reliability and power quality;
- Distributed wind generation, in many cases, can supply power much closer to electrical loads than conventional power plants, significantly reducing electrical losses as well as lessening constraints on congested power lines;
- Distributed wind generation is a way for community stakeholders to control electrical generation, allowing communities to keep energy dollars local and to take control of their energy future.

For more information please visit the [website](#).



NEWS FROM ARE MEMBERS

ANKUR SCIENTIFIC IS LOOKING FOR A PARTNER



Ankur Scientific, ARE's member from India and a global leader in biomass gasification technology with more than 25 years experience in the sector, is looking for a Business Associate to promote its technology in African countries.

You can find more information and technical specifications [here](#).



UPCOMING ARE EVENTS

1ST INTERNATIONAL OFF-GRID RENEWABLE ENERGY CONFERENCE, ACCRA, GHANA, OCTOBER 2012



ARE, together with the ECOWAS Regional Centre for Renewable Energy and Energy Efficiency (ECREEE) and the International Renewable Energy Agency (IRENA) are jointly organising the **1st International Off-grid Renewable Energy Conference**, an official contribution to the UN Sustainable Energy for All Initiative.

This Conference will be the first major international event focusing on off-grid renewables in developing countries with a special focus on Africa. With the objective of increasing the collaboration between public authorities and the private sector, the Conference's participants will collectively address issues related to sustainable rural electrification.

A large number of key stakeholders will be present at this event: Energy Ministers, rural electrification decision-makers, worldwide private sector representatives, utilities delegates, international organisations and financing institutions. In summary, a wide variety of participants, all with a role to play in advancing off-grid renewables in developing countries.

This international conference will be an opportunity to:

- Learn about the current status of rural electrification in Africa and developing countries
- Discuss the main bottlenecks to a successful scale up of off-grid renewable energies
- Highlight successful instruments and policies from around the world
- Share knowledge about innovative financing solutions, technologies and the latest research
- Meet influential stakeholders from Africa and beyond, decision-makers, and local and international private sector representatives

In parallel with the Conference, the Alliance for Rural Electrification is organising an **Exhibition** to give the private sector the opportunity to further present its products and projects, and offer general stakeholders ample networking opportunities.

More information [here](#).

MEET THE EXPERTS - BUSINESS WEBINAR "RURAL ELECTRIFICATION IN INDIA: OPPORTUNITIES FOR DECENTRALISED GENERATION AND DISTRIBUTION"

Meet the Experts
*Business Webinars **ARE**

ARE, together with The European Business and Technology Centre (EBTC), is organising a webinar exclusively for its members.

The webinar will give a possibility to learn more about the decentralised renewables market opportunities in India for the private sector, and ask questions directly to our expert, Mr Suman Lahiri, Regional Manager of EBTC in Kolkata, with a substantial knowledge in the field.

Main topics to be discussed during the webinar:

- The Indian decentralised renewables market: opportunities and challenges for international companies
- The Sundarbans village electrification project in West Bengal
- Other business opportunities in India

More information can be found [here](#).

ARE's members interested in participating should contact the [ARE Secretariat](#).

RENEWABLE ENERGY HOUSE OPEN DAY, BRUSSELS, BELGIUM, 20 JUNE 2012

In line with the EU Sustainable Energy Week, the Renewable Energy House (REH) is organising the Open Day – a possibility to visit the Europe's headquarters for renewable energy in Brussels. You will be able to attend presentation by the association hosted at the REH, as well as take part in guided tours of the House.

ARE will be present too, we are looking forward to meeting all interested individuals and organizations.

More information on the programme and how to register will be available shortly on the REH [website](#).

HIDROENERGIA 2012, WROCLAW, POLAND, 21-26 MAY 2012



Alexandra Reis, ARE's Communications and Marketing Manager will be speaking at Hidroenergia 2012 conference on 4 May.

The event is organised by the European Small Hydro Association (ESHA) and NEW, the Polish small hydropower association, and will attract several hundred delegates from Europe and around the globe.

More information [here](#).

SOLAR EXPO, VERONA, ITALY 9-11 MAY 2012



SolarExpo, one of the world's top 3 solar events, will attract major solar companies and decision makers from across the globe.

Alexandra Reis, ARE's Communications and Marketing Manager, will attend the event. Look for us in Hall 4, Booth A2.3!

More information [here](#).

INTERSOLAR NORTH AMERICA, SAN FRANCISCO, USA, 10-12 JULY 2012



This event focusing on photovoltaics and solar thermal technologies, gathers PV cell, module and inverter manufacturers, service companies, manufacturers of solar thermal applications and solar sector decision makers from all around the world.

ARE will also participate at the event – follow the programme for more updates.

More information [here](#).

INTERSOLAR EUROPE, MUNICH, GERMANY 13-15 JUNE 2012



ARE will organise an Off-grid Networking Reception at Intersolar Europe. The reception will take place on 14 June 2011, from 7pm to 11pm at Novotel Messe Munich.

Intersolar Europe aims to promote solar energy and showcases the latest market trends and technical innovations. The number of visitors expected is high: 80,000 people from more than 150 different countries.

More information [here](#).

UPCOMING WIND EVENTS

WINDPOWER 2012, ATLANTA, USA, 3 - 6 JUNE 2012

This is the largest wind-focused exhibition in the world, gathering over 1000 exhibitors around the world.

More information [here](#).

GLOBAL WIND FINANCE AND INVESTMENT, LONDON, UK, 26 - 27 JUNE 2012

This 3rd annual global event is a unique opportunity to meet international financing institutions, wind power R&D companies, wind project developers and others.

More information [here](#).



RECENT PUBLICATIONS AND STUDIES

GLOBAL WIND REPORT 2011

GWEC's annual market update on the status of the global wind industry gives a comprehensive snapshot of the global industry, now present in about 75 countries, with 21 countries having more than 1000 MW installed. This edition includes insights of the most important wind power markets worldwide, future trends with projections for 2012-2016 and role of public finance.

Read more or download the report [here](#)

GREEN GROWTH – THE IMPACT OF WIND ENERGY ON JOBS AND THE ECONOMY

The report by EWEA provides an in-depth look at why wind energy can be recession-busting industry, and analyses how much difference wind energy makes to economy.

Read more or download the report [here](#)

ENERGY SOLUTIONS IN RURAL AFRICA: MAPPING ELECTRIFICATION COSTS OF DISTRIBUTED SOLAR AND DIESEL GENERATION VERSUS GRID EXTENSION

Published by by the Joint Research Centre of the European Commission, the report presents the renewable energy options for electricity production in remote areas. The study also maps the potential of renewable energy sources in Africa, namely solar, wind, hydropower and biomass.

Read more or download the report [here](#)

ENERGY SOLUTIONS IN RURAL AFRICA: MAPPING ELECTRIFICATION COSTS OF DISTRIBUTED SOLAR AND DIESEL GENERATION VERSUS GRID EXTENSION

The study analyses three rural electrification options, aiming to find out whether diesel generators, photovoltaic systems or extension of the grid are the least cost-effective in remote areas. The paper is useful for donor programs and National Rural Electrification Agencies or their equivalent governmental departments. The study is launched by the European Commission Joint Research Centre and the UNEP Energy Branch Division of Technology, Industry and Economics.

Read more or download the report [here](#)
