



Editorial

Gema San Bruno

European Small Hydropower Association (ESHA)

ESHA is a founding member of the Alliance for Rural Electrification

Dear Readers,

For this issue, ESHA (European Small Hydropower Association) would like to emerge again the relevance of small hydropower technology in those countries where the electricity is needed the most.

Apart from the environmental, health and social burdens of traditional fuels, SHP for electrification in rural areas has many direct economic benefits flow from the use of electricity in productive applications, such as irrigation, crop processing and food preservation. Employment opportunities have increased as a result of the encouragement of productive applications and electrification has given increased potential for the development of business enterprises.

The development of good policy frameworks like (a) national policies for rural access to electricity including institutional, legal and financial frames, (b) planning of target areas, (c) capacity building for users and for local private sector and (d) communication activities of the benefits for SHP as a sustainable tool for social and economic development, is a key issue for the success of rural electrification small hydropower. In the global SHP sector, China is the major player, driven by long-standing rural electrification programmes from the government. China alone has developed more than half of the world's small hydro capacity and represents the bulk of installed capacity in developing countries.

In the last 30 years China, Nepal, Vietnam and many South American countries have seen a large number of micro-and pico hydro projects developed that are providing electrification to many thousands of households. So, why small hydro projects suit the best for electrification in developing countries? Generally speaking, micro and pico hydro technologies are used in developing countries to provide electricity to isolated communities where the electricity grid is not available and in most cases, no dam or reservoir storage is involved in these types of schemes. In addition, since the electricity from micro and pico hydro schemes are supplied directly to households, there is no large grid to control the frequency and voltage of the supply.

ESHA has identified China, India, Uganda and Brazil as the countries offering the best policy and financial framework for the development of SHP projects for rural electrification.

In addition, there are new impulses for the small hydropower projects in developing countries coming from the European Union like the Energy Facility program financed by EuropeAid for ACP-EU

countries aiming at delivering energy services in fragile situations. For example, the project PAMENU with a €2.4M grant from the Energy Facility program will provide decentralized electrification from small hydropower to 1 million Ugandans.

New incentives are also coming from the implementation of the Kyoto Protocol. Recently, ESHA has organized a workshop on CDMs & RES (REH, 28th March08) in the context of the Technology at Work project. The Clean Development Mechanism includes projects in non-Annex I parties which have to prove that they reduce emissions more than what would have occurred in the absence of the mechanism. CER (Certified Emission Reduction) for each tone of CO₂ equivalent reduction has to be issued. These CERs are CDM credits traded by governments and companies. At the moment there are more than 3000 CDM projects that have entered the validation phase and they are expected to generate some 2.5bnCO₂ emission reductions up to 2012. China, India, Mexico and Brazil have dominated CDM activities with 77% of all projects hosted in one of these countries. RES projects represent 55% of all projects and 28% of all expected CERs. About 15% of all projects deal with the operation of hydro plants of less than 20MW installed capacity which represents only 3% of all expected CERs. The Demand for Kyoto compliance instruments stands at 3.3bn and 2.4bn are expected to come from CDM/JI until 2012. Just to mention that from all CDM projects type, Hydro projects are rated with a 90% of issuance success compare to 76% for wind.

China is the best example of small hydropower development in the recent years. China has not only developed a clear CDM regulations but also in order to encourage the development of small hydropower for rural electrification, the central and local governments have made a series of policies and have adopted several measures to promote rural electrification like small hydropower should have its own network of local suppliers for example. In addition, it is worthy not to forget that China is endowed with the richest water resources in the world- 17.6% of the global total- and that the exploitable medium and small resources are 139 GW (most located in the was mountainous areas which account for 70% of the country's area inhabited by 56% of the total population). Therefore, the ample water resources can be used for rural electrification based on small hydropower development.

Just to conclude, we should not forget that access to electricity is one of the keys to development, as it provides light, heat and power for productive uses and communication and that around 1.8 billion people in developing countries DO NOT have access to electricity, most of them leaving in rural areas. Despite the rural electrification programs, this number is increasing due to the population growth. About 80% of the world's population is living in developing countries BUT they only consume 20% of the global commercial energy and they are spending more than 12% of their total income in energy. Small hydropower is a proven technology that can be connected to the main grid, used as a stand-alone option or combined with irrigation systems and can adequately contribute to the electricity needs then. In addition, it contributes to climate change mitigation, poverty alleviation and economic development by supplying electricity needs for lighting water pumping and operating small workshops - about 4 TWh of electricity could be produce from 1GW of installed capacity. ESHA is very proud of supporting projects that our members are developing in several countries in Africa and Asia as well as being part of the ARE family.

Happy reading,

Gema San Bruno

Information:

The CMD is one of the three flexible mechanisms available to Annex I parties to meet their commitment to help identify the lower-cost opportunities for reducing emissions and to attract private sector participation in the emission reduction efforts. The Kyoto protocol (entered into force in February 2005) commits developed countries to “legally-binding” targets to reduce their GHG emissions from 2008-2012. 177 countries have deposited instruments of ratification, accession, approval or acceptance to date. Of these, 37 countries, “Annex I” countries, are required to reduce GHG emissions below specific levels.



News from the Alliance

GENERAL ASSEMBLY OF THE ALLIANCE FOR RURAL ELECTRIFICATION

The next general Assembly of ARE will take place on Wednesday 25th June 2008.

This year our meeting will take place in Aix-Les-Bains in France, a city located on the edge of the Le Bourget lake, the largest natural lake in France; a spot that will facilitate the combination of business and pleasure. Additionally, “the solar event”, a leading demonstrative solar event, organized by local partners, will be held there from the 27th to 29th June.

This year ARE is also having General Elections to the Board of Members.

For more information about ARE’s AGM, or if you want to become a member of the Alliance and be directly involved within our strategy and activities, please contact us.

WORKING GROUP ON FINANCING SCHEMES FOR RURAL ELECTRIFICATION: FIRST WORKSHOP ON APRIL 23RD!

ARE is finally launching its long expected Working group on Financing Schemes.

The different socio-economic circumstances of rural communities and the political and economical situation of the developing countries, point out that there is not one financial solution to foster rural electrification but several. In some cases, financial schemes should be designed with no cost-recovery based revenue stream; whereas in other cases, they should allow to realize enough of a profit to attract investment capital, guarantying, at the same time, a sustainable access to electricity.

Different approaches have been worked out so far, involving the supply or the demand side. It is clear that the implication of the private sector is necessary, considering the general lack of investment in rural electrification within developing countries, but still, the involvement of the donor community is also very much needed.

Taking into account these different elements and after a lot of internal discussions and some surveys among our members we decided to dedicate this first workshop to the European Instruments for rural electrification in developing countries.

In fact, the European Union has committed funds and resources to enhance and increase energy access within developing countries, to develop innovative financing instruments and to promote public and private partnerships to scale up investment in renewable energies. At the same time, the renewable energy industry obviously stays a key source of technological solutions for the electrification of rural areas within the developing world, and they could also be a source of investment capital, if the right incentives are putting in place.

Within this workshop, representatives of the European Commission will introduce the tools that the EU has developed to promote renewables within developing countries and the role of the renewable energy industry therein. The renewable energy industry will also provide their views on the proposed instruments and their financing needs to move forward. This workshop wants to provide a meeting point to exchange ideas, share expertise and to look for collaboration opportunities between the EU and the renewable energy industry.

Entitled "Financing rural electrification in developing countries - a two fold perspective: the EU and the renewable energy industry" it will be held on the 23rd of April in Brussels at the Renewable Energy House.

For more information about this meeting and to participate please contact us.



EU PV PLATFORM: WORKING GROUP 4 – DEVELOPING COUNTRIES

The Working Group 4 (WG4) of the EU PV technology platform, of which ARE is a member, held his last meeting on the 12th of March 2008.

The WG 4 has developed a powerful scheme based on the adaptation of the traditional Feed-in Tariff concept for developing countries: the Regulated Purchase Tariff (RTP).

The RTP has been designed to be a cost-effective mechanism to achieve different purposes, such as to provide sustainable and affordable electricity based on RE to local users of developing countries. The WG4 is currently seeking resources to implement pilot projects in several countries. The good-performance of several pilot cases is needed to wrap up this concept and prove its viability.

Two crucial documents have, so far, been developed by this Group on the RPT, a report: "A new scheme for the promotion of Renewable energies in developing countries", and a brochure based on said report. The main aim of both documents is the divulgation of the "adapted FiT" scheme for mini-grids in developing countries to policy makers.

At this meeting, several very interesting presentations were given to describe the case studies which could eventually serve as pilot cases for the implementation of the RTP support scheme:

(Click on the links to download the presentations)

PV minigrid project in Darsilami a village in the Gambia (M. Vandenberg) followed by a socio economic presentation in the same village (M. Djuikon - Ferdedsi, NGO)

Regulated Tariff for rural electrification in Ecuador (X. Vallvé), followed by a presentation on the potential of the RPT in the same country (W. van Sark).

Finally A. Shanker presented a project of IED, newly member of ARE, in Mauritania, where feasibility studies to inject PV electricity into an already existing isolated grid run by diesel gensets have been done, and potential applications for RPT schemes have been proposed.

The members mainly concluded that the concept of RPT can make economically feasible and encourage the implementation of new PV business. However, according to the experts of the WG, the main barrier stays the institutional framework of the developing countries and especially its local definition. The participants also discussed the position and the role of the international community which could regulate the tariffs and of a fund which could serve as a guarantee for the investors in this type of projects.

The next EUPV Platform general assembly will take place on 6th June in Ljubljana, Slovenia where the WG 4 has been asked to present concrete proposals concerning Photovoltaic and Development issues.

Download the full report [here](#).

ARE AND THE CLUB ER

The Alliance for Rural Electrification has been invited to participate to the annual meeting of the CLUB ER (Club pour l'électrification rurale - Club for rural electrification) in Bamako, Mali from the 8th to the 12th April 2008.

The CLUB ER is an organization gathering the agencies and national structures in charge of rural electrification in more than 20 French speaking African countries and is run by IED, a member of the Alliance.

The work of the CLUB ER has always been focusing on the importance of horizontal (South-South) exchanges of best practices and they fixed as one of their objective the creation and the operation of an African rural electrification agencies' network.

In this framework ARE has been invited to bring in its own experience and the industry point of view but also to develop new types of partnership with a leading African organization in terms of rural electrification.

Therefore, it will also be the occasion to emphasize the necessity to develop in parallel North-South collaboration links towards the formation of new markets and the capacity building of these structures.

ARE will give a presentation, introducing the different support schemes for renewables in the North, as well as our activities and the potentialities for partnerships.

We hope that this meeting, where ARE is very glad to participate, will be the occasion to set up strong contacts with African authorities in charge of rural electrification and to launch creative relations to eventually facilitate projects from the industry in these countries.

The working agenda of the meeting can be downloaded [here](#) and a full review will be send to our members and supporters in our next newsletter.



THE TECHNOLOGY CORNER OF THE RURAL ELECTRIFICATION WORLD

A BOX FOR RURAL ELECTRIFICATION: THE ENERGY CONTAINER:

Remote locations often cannot be connected to a stationary power supply systems. **Such places need a mobile energy support**, an easy to transport and low maintenance solution which is ready to function around the clock even at climatic difficult places and even when diesel is just not available.

The ENERGY CONTAINER is a battery-buffered wind-solar-Diesel-system. The container itself is used as a shelter for the components such as diesel generator, wind turbine, PV module, batteries and entire controlling technique and also as their transportable carrier.

Setting up the energy container **does not take longer than 6 hours.** Once the energy container is set-up it can generate electricity from sun power and wind and if necessary from diesel genset. **It guarantees a peak output of 10 kW in combination with the diesel genset and a continuous output up to 5 kW.** By the maximum (100%) usage of regenerative power it supplies depending on the wind conditions and sun intensity between 5,000 and 15,000 kWh per year, in combination with the diesel generator even up to 37,000 kWh.

Quality demands on energy containers

Each component from wind -solar -Diesel -systems meets high technological standard The Maintenance rate can be extended up to 5 years. The operation data can be retrieved via an optional remote monitoring system to detect the service requirement on time.



For more information, please contact:

terrawatt planungsgesellschaft mbH

Breitenfelder Str. 12 D-04155 Leipzig

Phone: +49 (0) 341 / 56 29 7-26

Fax: +49 (0) 341 / 56 29 7-19

Web: <http://www.terrawatt.de>

Mail: [container\(at\)terrawatt.de](mailto:container(at)terrawatt.de)

SOLAR LANTERNS FOR RURAL ELECTRIFICATION:

SOLTYS is a French manufacturer of advanced solar LED lanterns (www.soltys.fr) dedicated to replace oil lanterns and participate to rural electrification actions.

They are a small company but with an industrial process which allows them to produce large quantities and to develop their products, they are looking for partners in the rural electrification domain.

Their lanterns can be charged directly by solar panels or integrated to solar home systems.

If you want more information or if you are interested by their activities please contact:

Alexandre Chavanne (Manager)

SOLTYS

22, rue des Vinaigriers 75010 Paris

Phone : 33 (0)1 70 08 49 48

Email : [a.chavanne\(at\)soltys.fr](mailto:a.chavanne(at)soltys.fr)

Web : www.soltys.fr



NEWS FROM THE RURAL ELECTRIFICATION WORLD

GLOBAL ENERGY EFFICIENCY AND RENEWABLE ENERGY FUND (GEEREF)

From ARE, we welcome the endorsement by the European Parliament of the Global Energy Efficiency and Renewable Energy Fund (GEEREF), conceived as a public-private partnership to mobilize public and private financing needed to scale up investment in renewable energy and energy efficiency within developing countries

In particular, we celebrate the fact that this motion specifically encourages the implementers of this fund to “favor investment in remote and decentralized supply”, to also “focus on small-scale projects which are the most difficult to attract private investment” (under 1million EUR) and to use the fund “to create opportunities for SMEs to contribute their technical know-how to the development and use of sustainable energy technologies in developing countries”.

GEEREF will be on of the topics of our incoming workshop (see above), where it will be discussed to which extent the renewable energy industry could be involved therein.

MISCELLANEOUS

'Alternative Energy Sources Can Solve Shortages'

The Herald, 25 February 2008 (Harare)

Zimbabwe can address its energy shortfalls if it harnesses other forms of power such as solar to complement hydro and thermal electricity which is currently in short supply, experts said last week. Speaking at an energy crisis workshop in Harare, officials said the country has vast untapped energy reserves which, if explored, could help turnaround the economy and solve the energy problems that have greatly affected business.

A comprehensive energy base, the experts added, would reduce power imports and enable Zimbabwe to channel its resources to other critical areas of national development.

Zesa Holdings managing director for transmission and distribution, Mr Ernest Muchayi said Government and the private sector should engage in serious talk on energy projects as the country was fast running out of power.

Scientific and Industrial Research and Development Centre senior official, Mr Onisious Manyere concurred and said investing in other forms of energy such as bio-fuels would provide Zimbabwe with a large pool base from which to draw its energy.

He said bio-fuels were environmentally friendly and renewable, meaning the country would always have sufficient power for its people. "Investing in bio-fuels will create employment as new industries emerge," he said.

Zimbabwe National Chamber of Commerce President Mrs Marah Hativagone said there was need to attract investors into the energy sector. She said a number of foreign investors had been in the country and done feasibility studies yet nothing concrete had come out of it. "Attractive incentives for venturing into the energy sectors should be crafted to enable more investment in power generation," she said.

<http://allafrica.com/stories/200802251093.html>

Rural Electrification - REA Partners Plateau State On 56 Grid Extension

Leadership, 26 February 2008 (Abuja)

The Plateau State government has reached an agreement with the Rural Electrification Agency (REA) for the completion of the 56 grid extension projects and the execution of renewable energy projects in the state. This assurance was given last Friday by the managing director of REA, Mr. Sam Gakpe, who promised to make his agency work together with the state government towards the completion of the project.

Gakpe disclosed that REA, soon after it was inaugurated in 2006, had discovered that many rural electrification projects that were started by the Federal Government as far back as 1986 were yet to be completed.

Gakpe, who hinted that the agency's plan was to involve the state and local government, as well as the benefiting community in the completion and maintenance of the projects to avoid degradation in the long run.

He disclosed that the agency was setting up the Rural Electrification Fund, which will be used to develop the rural network, saying, "Currently, the access to electricity, both rural and urban, stands between 40 and 45 per cent. The projection, according to the National Power Policy, is that by the year 2020 we should have a minimum of 75 per cent coverage penetration. That means that if we have the rural segment of the country constituting about 60 to 70 per cent of the population, we have a greater responsibility to ensure that we put in place an aggressive strategy to electrify the rural areas."

<http://allafrica.com/stories/200802260172.html>

Southern Africa: Renewable Energy Could Meet Up to 50 Percent of Region's Energy Needs

Pretoria, 25 February 2008

By 2050, renewable energy technologies could meet at least half of Southern Africa's energy needs at a lower cost than the current 'business as usual' mix of essentially coal-based supply options. In order to achieve this, there needs to be a revision of current regional energy policies, as well as effective regional planning and co-ordination. This is the message Southern African delegates will take to the Washington International Renewable Energy Conference (WIREC) planned for March 4-6, 2008 based on the findings of a preparatory workshop for WIREC in Pretoria.

REEEP's Southern Africa Regional Secretariat, with support from the US Agency for International Development, hosted the one-day Southern African Preparatory Workshop for WIREC on February 7, 2008 at the Innovation Hub, Pretoria. Thirty-eight stakeholders representing governments, regulators, financiers, industry, agriculture, R&D and civil society from seven countries (Angola, Lesotho, Malawi, Mozambique, Namibia, South Africa and Zambia) met to discuss the role of Renewable Energy (RE) in the SADC mix.

Renewable energy has increasingly captured the attention of Southern African policymakers due to increased regional energy shortages. In a 2006 study on the potential contribution of renewable energy, authors Douglas Banks and Jason Schæffler clearly demonstrate the credibility of a target of 50% of total energy from renewable resources by 2050, with changes in the current market conditions, policy implementation and regional planning.

The preparatory workshop identified several actions that could lead to better regional co-ordination and policy-making:

-The bolstering of regional planning, regulation and power trading institutions such as SADC Programme Office for Energy, RERA and SAPP (Southern African Power Pool).

-Stability in the energy sector for customers, producers and investors through legislation in terms of RE policy, as well as education and training in RE technologies.

-Common policy development and modes of implementation (including legislation); common regulatory approaches and frameworks; and, regional trading mechanisms for physical power and RE support mechanisms.

<http://allafrica.com/stories/200802251698.html>



RURAL ELECTRIFICATION AND RENEWABLE ENERGIES EVENTS: INCOMING APPOINTMENTS

20th -22nd May 2008: “3rd annual Biofuels Markets Americas Congress”, Miami, USA.

Organizers: green power conferences.

With the introduction of the new Renewable Fuel Standard, the USA is set to become the largest biofuels market in the world. There is huge potential for increased supply from Brazil, Argentina and other Central and Latin American countries. Furthermore, the US-Brazil Biofuels Partnership has been set up to help Caribbean nations and Central American countries become less dependent on oil imports and help switch their economies to focus on biofuel production and development from local crops.

The 3rd annual Biofuels Markets Americas Congress will bring together an unparalleled line up of market experts to analyze sustainable growth and trading strategies for the biofuels industry in the region. It will be the occasion to gain practical market insight from industry leaders and to learn from the experiences of regional biofuels producers.

More information at: [dana.vogel\(at\)greenpowerconferences.com](mailto:dana.vogel@greenpowerconferences.com)

29th-30th May 2008: "4th European PV-Hybrid and Mini-Grid Conference", Athens, Greece.

Organizers: OTTI

This European Conference with world wide importance will review recent progresses and achievements on PV system components and design development, with emphasis on hybrid and Mini-grid topologies. The event will be accompanied by an industrial exhibition.

Encouraged by the increasing success of the 3 previous PV-hybrid and Mini-grid events, the organizers are expecting the submissions of excellent papers not only in the traditional technical areas of components for autonomous PV power supply systems but also, in the fields of marketing and financial issues, legislative / regulatory frameworks as well as, socioeconomics, national programs and policies.

Smart grids are now under continuous development to ensure high quality, efficient and cost-effective power supply in a sustainable way. Such new grid approaches will be based on distributed generation systems which would consist of both renewable and efficient energy technologies. The role of utilities in adapting solar energy in the planning of future electricity networks is vital for the success market penetration of PV technology and Mini-grid topologies. Effectively, the role of PV-hybrid and Mini-grid systems is of great importance to fight poverty in the developing world.

ARE is a supporting association of this event and will be present through a presentation of its work on hybrid systems.

More information at: www.otti.de

11th -13th June 2008: HIDROENERGIA 2008, "On the Crossroads", Bled, Slovenia.

Organizers: ESHA (European Small Hydropower Association) and SSHA (Slovenian Small Hydropower Association)

HIDROENERGIA 2008 will be the biggest and most important events for the Small Hydropower sector in Europe. Leading experts meet biennially to convey knowledge and best practice experiences to investors and professionals from different areas. The event will be the occasion to discuss key issues for the SHP's world such as: Policy & New Opportunities, Image of Hydro, Environmental & Planning and Engineering Solutions.

Furthermore, a two-day presentation of machinery and electrical equipment for small hydropower plants, construction materials and engineering solutions will take place during throughout the conference.

ARE is a supporting organization of Hidroenergia 2008, ESHA being a founding member of the Alliance. We will be participating to this crucial conference and give a presentation on the potential for SHP in the framework of rural electrification beyond Europe.

For information on the venue, the program, sponsorship and exhibition opportunities, and registration fees, please send an email to hidroenergia@esha.be / zdmhe@ekowatt.si or visit www.esha.be / www.zdmhe.si

2nd - 4th July 2008: "The 10th Africa Energy Forum" Acropolis, Nice, France.

The Africa Energy Forum (AEF), launched in 1999, is Africa's premier annual power and gas investment and business forum, where governments and state utilities address the international energy community on opportunities available in Africa's power and gas sectors. The large gathering of decision makers increases the likelihood that business will be done, and feedback suggests that this is indeed so.

Of the 440 attending in 2007, over 40% came from Africa, and of those almost 40% were from the public sector. Private power developers and equipment suppliers accounted for 30% of the total, while the finance sector, including investors and advisers, accounted for a further 15%. This concentration of businesses under one roof expands the opportunities for fruitful contacts, and the accompanying AEF Exhibition provides valuable corporate exposure. Government and state utilities representatives' have presented investment and business opportunities to international power developers whereas the presence of major financial and legal institutions has generally facilitated this dialogue.

ARE is a supporting association of this great event. We will be probably directly participated to it through a conference and we can propose a discount to our members that will be interested in participating to this important conference.

More information at: www.energynet.co.uk/AEF/AEF2008/index.html

1st-5th September 2008: 23rd European Photovoltaic Solar Energy Conference and Exhibition (EU PVSEC), Feria Valencia, Valencia, Spain

Organizers: WIP

The Conference will provide an excellent platform for dialogue and information exchange across the World. The 'who is who' of the PV solar branch will meet at Valencia to discuss the latest developments in science and industry. The venue itself, the "Feria Valencia", is Spain's foremost trade fair institution and also one of the country's most modern congress centres, it is the perfect setting for the world's largest PV solar event.

In addition to the Conference around 600 exhibitors from all over the world will present innovative products, new production processes and research findings relating to solar photovoltaic power generation.

Thanks to the kind support of EPIA and of SMA, members of the Alliance, we will be participating to this event. It will be the occasion to reinforce the position of the off-grid sector within this major event.

For more information: www.photovoltaic-conference.com or contact [pv.conference\(at\)wip-munich.de](mailto:pv.conference(at)wip-munich.de) or [pv.exhibition\(at\)wip-munich.de](mailto:pv.exhibition(at)wip-munich.de)