THE IMPORTANCE OF MINI-GRIDS FOR FUTURE RURAL DEVELOPMENTS

Dear Friends of the Alliance,

In October this year, the International Energy Agency (IEA) will present its special report for Africa in its *World Energy Outlook 2014*. It is likely that despite advances in technology and cost reductions, the pace at which clean energy mini-grids are being developed and financed remains off-track to achieve the SE4ALL 2030 target on this continent but also in equally important regions in the world lacking access to modern energy services. In 2011, the IEA estimated that in order to achieve universal access to electricity by 2030 (almost 400TWh), over 40% of all installed capacity would be most economically delivered through mini-grids.
In the understanding that mini-grids are expected to play a key role in the area of energy access, the Alliance, who by now is the only business organisation admitted by SE4ALL, together with leading international organisations from the public and private sector, took the initiative to set up the **High Impact Opportunity (HIO) on Clean Energy Mini-grids** launched at the first SE4ALL Forum in New York in June this year. This new HIO will use the international framework of SE4ALL to further enable, enhance and promote existing and upcoming efforts in the sector, with a view to increasing rate of deployment and market transformation impact. If you wish to join this dedicated group of mini-grid supporters, please register on the [HIO website](#) run by UN Foundation and the Alliance for further information.

What makes mini-grids so important for future rural developments?

Mini-grids are decentralised electric systems characterised by the proximity between generation and consumption. By the use of diverse levels of technologies including power converters and energy management systems, they can combine different renewable energy types for electricity generation and energy storage systems linked to the end users. These cost-effective village-wide distribution networks are not connected to the main national grid and are therefore easy to deploy. To serve climate objectives, hybrid power systems can offer a very practical and affordable solution as they use renewable energy as a primary source and diesel as a backup source.

On this note, in partnership with EUEI PDF, REN21 and ARE member Inensus, the Alliance has been contributing to the establishment of the **Mini Grid Policy Toolkit (MGPT)** which will be presented at the EuropeAid workshop ‘Empowering Rural Electrification - The EU Framework for Access to Sustainable Energy Workshop’ on 29-30 September 2014 (See more under: [News from the Alliance and our Partners](#)). This key reference document will present turnkey concepts, thereby enabling policymakers to improve the investment climate for mini-grids in their respective countries.

In addition, ARE member University Neu-Ulm together with the Alliance will present the results of the new Mini-grid study at the EuropeAid workshop to contribute to a better understanding of the financial requirements and risk assessments of mini-grids (see more under: [Publications](#)).

As a result of all ongoing mini-grids activities, the Alliance has identified **mini-grids as its focus campaign area** to bring the values of this technology to the attention of decision-makers for the second half of 2014. I invite you also to have a read at our [last newsletter on India](#), where you will find further mini-grid case studies.

The Alliance is a membership fee based organisation and welcomes more organisations to support us and join us in our efforts to support SE4ALL objectives ([ARE Benefits & Advantages Presentation; Membership Form](#)). This month in August, we warmly welcome five new members: All Power Labs, BEST BRANDS INC., DEECC Consulting, Generalia and OneSun.
Finally, I would like to thank our readership of the ARE newsletter, which has increased from 2,500 to more than 11,000 within less than 18 months, for their great attention and interest for the activities of the Alliance. I wish you all a happy and fruitful reading.

*Marcus Wiemann*

**Guest Editorial**

Kandeh K. Yumkella, CEO (SE4ALL)

**CLEAN ENERGY MINI-GRIDS – A SE4ALL HIGH IMPACT OPPORTUNITY (HIO)**
Providing sustainable energy for all is one of our world’s greatest challenges. Everyone in this world needs access to modern energy sources to manage their everyday lives and to thrive economically. Considerable progress has been made in the last decade, yet in spite of rapid strides made by a few countries more than a billion people still lack access to electricity. Often times, they are far off the main electricity grid.

The situation is particularly acute in the developing world where the energy poor, men, women and children, 1.3 billion, live in rural, remote areas and beyond the electrical grid. They rely on traditional sources of energy, such as coal, wood, animal waste for cooking and heating purposes and kerosene or candles for lighting.

In many countries where central grid systems are not well developed, off-grid and mini-grid systems present important opportunities to quickly and flexibly increase the availability of electricity supply. With renewable energy sources often being the cheapest source of off-grid supply, they also present us with viable ways to stop degradation of our environment by tapping low carbon sources and energy efficiency.

One of the global targets of the UN Sustainable Energy for All Initiative is to ensure universal access to modern energy services. If we are to meet this goal then it is clear that mini-grids systems are one of the options we must pursue alongside grid extension and stand-alone household energy systems. We believe clean energy mini-grids represent a cost effective option for clustered communities not economically reached by the grid, and are a critical part of the “energy access mix”.

However, tapping into these technologies demands a conscious effort on the part of governments to create the enabling environment needed – or at least to remove the barriers - for the participation of the distributed utilities and developers who can deliver mini-grids.

We support expansion of mini-grid provision for the energy poor because it makes economic sense and also takes into account the needs of the environment. Decentralised generation and mini-grids have the potential to generate reliable power, beat the unit costs of current practices like kerosene and battery charging, and contribute to the economic development of local communities. They can also empower local communities become partners rather than just consumers.

Public, private and civil society partners in the Sustainable Energy for All initiative have come together to launch Clean Energy Mini-Grids as a High Impact Opportunity (HIO), because we believe 40% of universal electrification by 2030 can be achieved using renewable technologies.

The HIO will use Sustainable Energy for All as an international framework to multiply the impact of existing and upcoming efforts in the area of clean energy mini-grids. Our efforts will focus on supporting the establishment of an enabling ecosystem for accelerated investment, deployment and replication of clean energy mini-grids towards meeting the objectives. All partners with an interest in mini-grids are encouraged to join us, and further information, including on how to join, is at www.se4all.org/minigridsHIO.

We will continue to support our partners around the world to find solutions that meet local energy needs using locally available resources so that the benefits are enjoyed by all - because Sustainable Energy for All, underpins equity and shared prosperity for all. In particular, we wish the Alliance for
Rural Electrification and the United Nations Foundation all the success in establishing the secretariat in order to safeguard quick results through the HIO.

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**NEWS FROM OUR SPONSOR**

KUDURA | RURAL ENERGY AND WATER WHEREVER IT IS NEEDED

*By Vivian Vendeirinho, Managing Director, RVE.SOL*

**Rural Electrification – the rise of the mini-grid**

Recent press and criticism around Bill Gate’s support of accelerated grid roll-out as the solution to rural development in Africa has affirmed our long-standing position on the limited long-term benefit of small scale solar lighting and home systems. Despite disagreeing with him as to the national grid being the solution, we certainly stand for the decentralised mini-grid as the best-world compromise between the two.

The fact of the matter is that in every community we visit, we are confronted with two questions: “will this system provide enough power for a TV”. The same goes for “refrigeration” albeit varied by region and country.

Waxing interest and investment in mini-grids across the board lends credence to a sweeping change in perception about long-term viability and accelerated rural energy access. ARE’s work in this space has certainly helped to coagulate what were a few dispersed players three years ago into, we believe, the long-term solution to this problem. Many rural electrification authorities now offer financial incentives to the private sector to take the leap, something which not long ago was lip-service.

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**Return on Investment – learning from the field**

The KUDURA | Sustainable Development Solution aligns perfectly with these market indicators,
relying on a community-wide mini-grid to provision typically solar/biomass-derived electricity to pre-pay users. Deployed in a community, it electrifies productive energy use like irrigation, grain mills and even telecom base-stations (BTS) as well as small business centres and rural homes.

The problem with energy per se is that the relatively high equipment CAPEX requires a long time to generate a financial return, given the typically small amounts of energy consumed by the bulk of subscribers. KUDURA gets around this problem in an innovative way, offering project payback periods as low as seven years on capital investment of €1,900 per household over a 20 year period.

Critical to this return on investment is securing revenue streams for services consumed by users of the mini-grid. Our experience in rural Kenya has shown that money management and financial transparency are a hindrance to securing this return hence an alternative service mechanism is required.

Given a lack of a comprehensive and flexible “access-metering-prepay-billing” solution on the market, we are completing development of a system that will go into trial in Uganda later this year. This system will cater for time- and consumption-based metering, not only for energy but for water and cooking gas also. Most importantly it will allow entry-level users to start with basic, partly subsidised service tariff and then to upgrade their tariff over time as their ability to pay and needs increase.

Certainly our experience at our pilot project in Sidonge has shown that energy demand quickly grows as households save aggressively to purchase TV’s and fridges.

**KUDURA – flexible, scalable & reliable mini-grid solutions**

KUDURA is built to be:

- Flexible in terms of fuel source leveraging solar energy and agricultural biomass waste for energy generation;
- Scalable in terms of size with models from 30 to 150 households;
- Reliable in terms of quality – manufactured to ISO9000 standards; and
- A long-life solution, tied to our quality guarantee.

**KUDURA - Contact us to discuss your needs.**

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**IN FOCUS: VOICES FROM THE GROUND**

**STUDER INNOTEC’S ANSWER TO THE MINI-GRIDS CHALLENGE**
By Serge Remy, Head of Sales & Marketing, Studer Innotec SA

Today, a significant part of rural electrification projects by mini-grid are considering the use of solar energy as a primary source of energy in a hybrid system. The PV energy introduced into hybrid systems may be done in two ways: either by coupling PV on the AC bus, or by coupling on the DC bus. Until today, AC bus connection through “String” inverters was often chosen despite some inconveniences inherent to this technology, including the stability of the system and efficiency for the part of stored energy. This choice was driven notably by the easier wiring of PV generators of high power PV arrays.

Today, Studer Innotec proposes a relevant alternative with a product meeting both the simplified installation requirements and the desired benefits of direct connection with the DC bus. It allows the implementation of simple and reliable PV arrays over 100kW directly on a 48V battery bus.

In fact, Studer Innotec realised a technical breakthrough with a unique Dual MPPT solar charge controller 120A/48V allowing for reliable plug-and-play DC systems over 100kWp.

**Fully isolated, the VarioString VS-120 is a high voltage solar charge controller, with inputs up to 600V (Voc) (2x3.5kWp in parallel or independent configuration) or up to 900V (Voc) (7kWp in series configuration).**

**Among many unique features:**

- Reduces Balance of System costs (eliminates expensive wiring for parallel strings, saving wires, connectors, junction boxes, fuses, space, time, etc.)
- Safe, simple and trouble-free connection with SUNCLIX™ (Phoenix Contact “tool free”) PV connector.
- Two independent MPPT inputs allow the tracking of two distinct PV strings in orientation, power, and/or voltage level which brings optimised efficiency and greater flexibility for building integration of PV.
• Any grounding strategy is applicable thanks to the galvanic isolation of the dual MPPT inputs which enables a different grounding scheme on the PV and the battery side, if necessary.
• Fast and precise tracking algorithm that brings the MPPT efficiency to over 99%.
• Optimally integrated in an Xtender hybrid system offering synchronised battery management.
• Local (wired) display, datalogger, and programing with RCC-02 device.
• Remote Internet access (parameters, real time/stored data, SMS/email alarms,) with Xcom-LAN or Xcom-GSM device.

Today, Studer recommends the initial planning of hybrid systems – i.e. for mini-grid applications – with the PV generator coupled on the DC bus via the VarioString, while keeping the possibility of a future PV generator extension on the AC side, with string inverters. This approach has many advantages in terms of performance and stability of the hybrid systems, while preserving the benefit of long strings of PV generators. The use of the VarioString along with the Xtender family of bidirectional inverters is optimal and allows for a clean interaction with the coupled AC source either with grid injection of excess of energy (public grid) or without (diesel generator).

Please contact Studer Innotec for more information about this product.

A PUBLIC-PRIVATE PARTNERSHIP FOR THE PROMOTION OF RENEWABLE ENERGY IN RURAL MALI

By Djibril Séméga, General Manager, Yéelen Kura

Yéelen Kura (meaning new light in Malian) is a rural electrification programme located in the cotton-growing region in southern Mali since 2001 company. It is one of five companies supported by FRES (Foundation Rural Energy Services) of the Netherlands.

As one of the early pioneers of rural electrification in Mali, Yéelen Kura implements a model of
management known as "fee for service" to facilitate access to energy in remote Malian populations of the interconnected system.

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Yéelen Kura adheres to the vision of FRES and the Government of Mali to promote renewable energy, including solar photovoltaic to facilitate access to energy to the greatest number of rural people. Under the public-private partnership with the Malian government, the company has benefited from ambitious rural electrification programs in its scope of intervention to build electric power production infrastructures and to cover the electricity needs of nearly 5,713 users.

Between 2001 and 2005, the programme offered to rural populations electrical services from solar kits ranging from 60-120 Wp. These services destined for households, health centres, schools and community structures were designed to meet their needs for comfort.

The creation in 2005 of the Malian Agency for Domestic Energy and Rural Electrification (AMADER) has allowed the programme to sign a financing agreement of € 2.3 million to build 10 micro power grids powered by generators to meet power needs of the people and thus promote the creation of income-generating activities – a pledge of economic development. This project funding has further increased the number of users from 1,500 to 5,000 subscribers in three years.

From 2007, the increase in diesel prices by over 25% in two years has encouraged the operating deficit of thermal power plants. Solar power systems have been identified as a sustainable solution to the deficit whilst also respecting the environment of rural Mali.

In 2008, FRES decided jointly with Yéelen Kura to realise the first solar power plant pilot project in Kimparana to substitute the diesel generator. Through public-private partnership and its local community, the success of this € 904,000 project (55% funded by the PSOM programme of the Netherlands and 45% by NUON) allowed the project to obtain new financing between 2011 and 2012 from organisation, such as the World Bank and FRES/NUON, to replace all diesel power stations with solar power systems or solar diesel hybrid systems.

Today, Yéelen Kura operates nine solar power plants with a total capacity of 622 kWp and produces...
approximately 750 MWh of energy annually to cover the needs of 57,130 rural people living away from the national grid.

A new culture of energy consumption has emerged in southern Mali, where we are witnessing the emergence of small industrial units to improve working conditions in health centers, schools and women working night shifts. Taking into account the energy budget of rural families raises initiatives that contribute to the development of local economic activities at the lowest level.

**DEMONSTRATING DECENTRALISED CLEAN ENERGY MINI-GRIDS AS AN INVESTMENT OPPORTUNITY**

*By Dean Cooper, Energy Finance Programme Manager, UNEP*

The United Nations Environment Programme (UNEP), in cooperation with like-minded organisations and leading private sector partners, has set up a new initiative to develop cost-effective, decentralised, clean-energy applications in isolated off-grid communities of targeted developing countries.

Involving public funders and potential private investors at an early stage is key to ensuring that the perceived risks to future private investment are being addressed. This will then provide the basis for future private sector investment.

Two approaches are being pursued:

- The hybridisation of existing diesel-powered regional grids aiming for conversion to 100% renewable energy;
- The introduction of new clean energy mini-grid structures for currently unserved locations in developing countries.
In the first case, UNEP has joined forces with the International Renewable Energy Agency (IRENA) and Siemens in a public-private partnership to identify what it takes to develop commercially-viable business models for the operation of clean energy hybrid mini-grids. Together with the private sector, the ambition is to demonstrate by the end of 2015 a range of cost-effective clean energy grids operating in eight locations in Africa, Asia and Latin America currently being supplied by isolated diesel grids.

As a first step in this process, business models have been developed by the Frankfurt School - UNEP Collaborating Centre to demonstrate the commercial viability of the clean energy grids. Assessment results concluded in 2014 provide the basis for phase 2 implementation activity to demonstrate cost-effective clean energy mini-grid operation.

To introduce clean energy mini-grids to currently unserved sites, UNEP is targeting southern Africa. The first target country is Mozambique, where UNEP and Energias de Portugal (EDP), the Portuguese utility, are collaborating to bring clean energy to remote areas in Mozambique. The objective is to help communities in these areas to access energy from local renewable energy resources at an affordable rate. These new clean energy mini-grids will thereby support the country’s efforts towards low carbon development.

The project will be implemented in two steps. Firstly, target sites will be identified and business plans developed to show that such mini-grids can be commercially viable. This will be followed by building the actual mini-grid to demonstrate cost-effective operation under location conditions. The first phase has just been kicked-off in Mozambique with the identification of target sites.

This public-private partnership is part of a broader initiative by UNEP to demonstrate market-based, clean-energy applications in a range of isolated communities of developing countries worldwide. The aim is to attract private sector investment for clean energy mini-grids, which are a key element to bringing affordable clean energy solutions to the 1.4 billion people around the world who are still lacking access to electricity.
UNEP is inviting public and private sector organisations to register their interest in this initiative, with the ambition to build an effective public-private partnership for sustainable, decentralised access to clean energy.

For more information please contact: Dean Cooper

RENEWABLE ENERGY FOR SUSTAINABLE RURAL DEVELOPMENT OF INDONESIA

By Dwiati Novita Rini, Public Relations and Knowledge Manager, GIZ

“Indonesia has been independent since 68 years ago, but for us it’s just now that we are independent,” Victor Tabalakashi, the village chief, quoted on the name of his village.

EnDev Indonesia, a rural electrification project implemented by GIZ, has been supporting over 300 micro hydro power plants (MHP) and over 200 solar mini-grids throughout Indonesia. The support known as Mini-Grid Service Pack (MSP) comprising technical review on the power generation and capacity development for the village management team (VMT) – a community organisation who operates and maintains the facility.

Utilising water resource for electricity generation
In Indonesia, MHP has reached its maturity in terms technology and management although the latter still faces hindrances and challenges. EnDev Indonesia just recently conducts technical review and on-site VMT training in MHP Nuapin. Nuapin is a remote village in Timor Tengah Selatan within Province Nusa Tenggara Timur. It is about seven to eight hours trip by a 4WD (four-wheel-drive) car passing three villages and three forests in Mountain Mutis. The MHP has been operating since December 2013, supplying electricity for 186 households and public facilities such as village office, a health centre, four churches, and two schools.

Most villagers expressed their satisfaction with the impact of MHP in their village. Previously they had to spend around IDR 90,000 month to purchase kerosene for lighting, while currently they only
have to spend IDR 16,000 as MHP electricity tariff. This tariff, however, is seen to be too low to run the MHP healthily. Therefore, it was the role of EnDev Indonesia team to inform the best practices to maintain MHP by good administrative and financial management. EnDev team also introduced the SMS communication platform called BReIDGE which serves to connect EnDev with the VMT as part of monitoring and measures to assure sustainability.

**Harnessing solar power as modern energy access**

Not only is Indonesia rich with micro hydro power potential, solar power is also abundantly available all across the country. The Government of Indonesia through the Directorate General of New and Renewable Energy and Energy Conservation (DJEBTKE) continuously expands its solar mini-grid programme to provide electricity to the most remote villages. One of them is the one in Lamonae. This village is located in about 180 km north of Kendari, the provincial capital of Sulawesi Tenggara. This 15kW solar mini-grid system has been operating for four months supplying electricity for 54 households, three public facilities consisting of a school, a mosque, and a village hall and in addition, 34 streetlights.

![Image of a solar mini-grid system in Lamonae village](image)

Previously, Lamonae community had to purchase their own diesel generator set to produce electricity for their houses. Other villagers connected electricity from the neighbouring village by paying IDR 100,000 per month. A VMT on-site training and socialisation about solar mini-grid has also been conducted to nurture local people on how to maintain the facility independently.

**What electricity means for rural development**

Electricity has changed the village significantly. Even though every household is only provided with electricity sufficient for no more than three fluorescent lamps and a television, both Lamonae and Nuapin people are really grateful and happy. Nowadays both villages have more dynamic and livelier days and nights.
The power generation facilities have strengthened communication within the community. This is also an important milestone for small remote villages to grow and be equal with other villages with on-grid electricity access from national electricity network. Both MHP and solar mini-grid are off-grid schemes of which people should have their own responsibility to maintain the facilities and control the administration.

“Today our village feels more alive at night. We communicate better and easier with neighbours and also feels secure with the streetlights,” said Pak Burhan, the operator of solar mini-grid SulTraS09.

Benefits are not only for adult to increase their productivity, but also for children to encourage them to dream high. EnDev Indonesia had the privilege to meet a group of Lamonae girls who want to be artist or group singer in the future. These children are inspired by the famous girl band they knew from television music programme. It is quite an extraordinary dream of rural children. They learn how to sing and dance and even create their own choreography.

In Nuapin, the story is about how the children now can study more comfortably at night. Before, they always had to wipe their faces because of smoke released from traditional kerosene lamp called pelita. Moreover, the villagers could watch world cup matches and follow the Indonesian presidential election.

It is quite obvious how renewable energy improves the welfare of people in rural remote areas. Renewable energy also promotes equal development all over Indonesia.
ALL Power Labs is the new global leader in small-scale gasification. They make biomass fuelled power generators that are ready for everyday work, to serve real world distributed energy needs. Their goal is to deploy at scale a new type of energy product: a personal scale waste-to-energy appliance. Imagine a “personal computer of energy” or a “washing machine of power”— a machine that intakes the “waste” biomass fuel already onsite, and converts it to multiple forms of power and products right where they are needed.

BEST BRANDS INC.

BEST BRANDS INC. is a company established in Manila, Philippines. Through its off-grid technologies arm POWER 4 ALL, the company creates community access to cutting edge solutions to power, light and water. These include renewable energies, lighting, water generation and water treatment. These technologies have been utilised by respected global organisations including the United Nations, World Bank, World Vision, MercyCorps and USAID to address concerns ranging from climate change to humanitarian response to community development.

DEECC CONSULTING

DEECC Consulting is a consultancy that provides advice to businesses, municipalities and communities in energy efficiency and sustainable development of the energy sector, including strategies to reduce greenhouse gas emissions, development of renewable energy and cogeneration, training in energy and environment and the development of CDM projects. They are active in both Europe and in developing countries.
GENERALIA

Country: Spain
generalia.es

Generalia Group is a Spanish industrial company founded in 2004 focused on R&D. It has developed solutions for the feed-in tariff PV market such as installations engineering and tracking systems. After this successful experience we have decided to focus our activities in the rural electrification market for developing countries. We have identified Mini Grid systems as a very important niche and, up to date, we have designed and manufactured Plug & Play solutions from 1kW up to 5kW micro stations and a containerised system in a range from 10kW to 60kW.

ONESUN

Country: USA
onesunsolar.com

With a focus on rural electrification, OneSun has assets and strong interests as product and service provider for solar and mini-grids technologies in Africa and Asia.

News from the Alliance

INVITATION: EU-INDIA RENEWABLE ENERGY MISSION 2014, IN THE FRAMEWORK OF THE 8TH RENEWABLE ENERGY INDIA EXPO (DELHI, 3-5 SEP 2014)
EBTC in cooperation with partners ACCIÓ, CEIPIEMONTE and the Indo-Italian Chamber of Commerce and Industry will be organising a commercial mission of European companies dedicated to the renewable energy sector.

The commercial mission will take place in the framework of the 8th Renewable Energy India Expo. This fair provides the ideal opportunity to present the technological expertise of European companies and to explore possibilities of collaboration and synergies with Indian institutions and local companies.

Marcus Wiemann, ARE Secretary General, will be attending Asia’s largest event on renewables as a panellist to further intensify interaction between India and ARE experts with a view to address opportunities for renewable energy based applications and solutions in rural India.

INVITATION: MICRO-GRID DEPLOYMENT WORKSHOP: IMPLEMENTING GRID-TIED, REMOTE, AND OFF-GRID SOLUTIONS (BARCELONA, 22-23 SEP 2014)

The Micro-grid Deployment Workshop is a two-day program that examines the business models, optimal technology mix, and critical steps for successfully deploying micro-grid systems in remote, island, and off-grid environments. The emphasis is on refining the business model as well as effectively planning, designing, and deploying micro-grids. Co-hosted by HOMER Energy and Trama TecnoAmbiental, the Workshop will bring together project and technology developers, system owners and utilities, and other energy professionals from across the industry for in-depth information sharing and networking.

The first day consists of a series of panel sessions that systematically analyse the key steps and requirements for deploying hybrid energy micro-grid systems. The second day consists of case
studies in the morning and an in-depth, hands-on training session in the afternoon focused on the
use of HOMER Energy software for the design of such systems.

SAVE-THE-DATE: EMPOWERING RURAL ELECTRIFICATION - THE EU FRAMEWORK FOR ACCESS TO
SUSTAINABLE ENERGY (BRUSSELS, 29-30 SEP 2014)

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Given the crucial importance of energy access as a powerful lever of growth and competitiveness in
developing countries, the European Commission - EuropeAid will host a workshop on 29-30
September in Brussels. This one and a half day workshop will bring together about 200 international
leading stakeholders to present and discuss potential new financial opportunities to support Rural
Electrification through the joint efforts of the private sector and civil society organisations. During
panel discussions, attendees are welcome to share experiences and identify common practices.
The main objectives of the workshop are to:

• achieve intensive mobilisation of the private sector and civil society in order to increase and
  improve access to modern, affordable and sustainable energy services for poor populations
  living principally in rural areas;

• encourage more actions in the field of decentralised energy solutions within the existing
  financing envelops; and

• attract additional financing.

More information on the programme will be made available soon by the European Commission.

For further information on the workshop, kindly contact: EuropeAid-RURAL-ELEC-
WORKSHOP(at)ec.europa.eu

INVITATION: ARE ENERGY ACCESS SEMINAR: MEET THE EXPERTS (BRUSSELS, 30 SEP 2014)
You are warmly invited to the upcoming ARE Energy Access Seminar to learn how to successfully realise self-sustainable business solutions for access to energy and services in developing countries by making use of upcoming finance supporting schemes.

During the seminar, experts with long-standing experiences in the sector will give practical insights and hands-on advice to both experts and newcomers from the private and public sector on important issues for practitioners.

Further details on the seminar including the preliminary programme, sponsorship opportunities, deliverables and registration form can be found on our [website](#).

**INVITATION: MINISTERIAL CONFERENCE “ITALY-AFRICA, WORKING TOGETHER FOR A SUSTAINABLE ENERGY FUTURE” (ROME, 13-14 OCT 2014)**

The Italy-Africa Initiative, in its specific energy-environment sector, plans to relaunch relations with African countries through an analysis of the prospects for investment in power generation, development of transmission networks and renewable energy - all decisive factors in the path towards a sustainable development of the continent.

Jointly with the Africa EU Energy Partnership (AEEP) and in cooperation with ARE - the partnerships’ private sector focal point - the Initiative has dedicated the first day of the Italy-Africa conference to a Dialogue session of the private sector working in off-grid renewable energy. The forum will bring together major European and African private sector practitioners to discuss pertinent issues with regard to investing in Africa's renewable energy market. The conference will enable participants to compare experiences of dealing with investment risk in Africa, build business partnerships and identify investment opportunities.

During the upcoming Italian Presidency of the EU, the Italian Ministry of Foreign Affairs will host the world premiere of the Focus Africa of the World Energy Outlook, the most prestigious publication of
the International Energy Agency (IEA) and a technical workshop on "How to deal with risks in the African energy sector" hosted by the Africa-EU Energy Partnership. The conference will see the participation of the main international energy institutions like IEA, IRENA, UN agencies, as well as global initiatives such as the UN Sustainable Energy for All, among others.

To register, kindly confirm your participation at italiamrica.energia(at)esteri.it AND secretariat(at)aeep-conference.org. Agenda and invitation will follow.

INVITATION: SOLAR ENERGY TECHNOLOGY IN DEVELOPMENT COOPERATION (FRANKFURT, 6-7 NOV 2014)

The SE4ALL Initiative released by UN General Secretary Ban Ki-Moon, was the stimulus for an international dialogue on energy in developing countries. SE4ALL places great emphasis on providing access to affordable, secure, and reliable healthy energy services and renewable energy sources through for people in developing countries.

The need to create energy economies and energy infrastructures in developing countries, the decentralised energy demand in rural areas, and the large solar resource in most of these countries are perfect conditions for implementing new technologies that utilize renewable energy sources. Moreover, the increased use of locally available resources can contribute to many countries’ debt-relief efforts as the importation of energy is one of the contributing factors to high level of debts in developing countries.

Photovoltaics, solar drying, solar cooking and solar thermal systems, can help to build a sustainable energy system in developing countries, and with the appropriate implementation provide local jobs.

During the two-day conference participants will learn about, discuss and share knowledge and experiences on realised projects, project financing instruments, and social, political and economic barriers for implementing solar technologies. The conference offers a forum for know-how transfer and exchange of experiences between international solar experts and people working in the field of development cooperation and development policies.

Should you be interested in individual counselling for develoPPP.de project ideas, you can get it during the conference, too.
MAKING BUSINESS OPPORTUNITIES HAPPEN AT THE AFRICA BUSINESS PARTNERSHIP FORUM (LONDON, 24-25 JUL)

The Africa Global Business Partnership Forum (AGBPF) is a business match-making meeting aiming to connect foreign investors, companies and businesses to strategic partners and opportunities in Africa. The forum sought to bridge the information gap and create a platform to allow buyers and suppliers to meet face-to-face in a pre-arranged one-to-one business meeting, culminating with trade missions to selected African countries.

Balthasar Klimbie, ARE Vice-President spoke during the “Powering Africa: Towards a Sustainable Energy Sector in Africa” Session focussing on the latest developments and opportunities, and how private sector and government through public–private partnership (PPP) could enhance and achieve sustainability in the sector in Africa.

EXPLORING THE POTENTIAL OF OFF-GRID IN EMERGING ECONOMIES AT THE 5TH WORLD RENEWABLE ENERGY TECHNOLOGY CONGRESS AND EXPO (DELHI, 21-23 AUG)

The World Renewable Energy Technology Congress is India’s premier renewable energy annual event, WRETC-2014 where ideas were shared with global renewable energy industry leaders, experts, financers, network and establish business links with leading companies. It was an opportunity to expand business and keep up-to-date with developments in renewable energy technologies.

Richa Goyal, ARE Country Manager India, presented on ARE’s global initiatives and her work in India. Sharing her views on how the off-grid sector is shaping up in emerging economies, including possibilities she saw emerging in the micro-grids sector in an energy access context, she followed with how ARE could pitch in. She finished with three examples of technology applications from the
ARE India Taskforce (EnerKite, Sheerwind and Smart Hydro Power) in the Indian off-grid scenario. Her presentation generated a lot of interest from conference participants including questions around the landed cost of installations and locations of pilot installations of these technologies.

**RECENT DEVELOPMENTS OF THE "MINI-GRID POLICY TOOLKIT"**

ARE is contributing to the establishment of the [Mini Grid Policy Toolkit (MGPT)](https://www.minigridpolicytoolkit.org), together with several partners including the EUEI PDF (Secretariat of the Africa-EU Energy Partnership) and REN21.

The Toolkit will target policy-level decision-makers and senior technical staff in developing countries towards supporting them in shaping up the policy and regulatory framework for rural electrification through renewable energy or hybrid mini-grids.

The Toolkit will therefore build awareness on the potential and applicability of mini-grids, tackle common misperceptions about the feasibility and viability of such approaches, and provide specific advice on the improvement of the relevant policy & regulatory framework.

The project comprises both the development of the Toolkit as such, as well as its dissemination by way of capacity development for and with the target group on the basis of the Toolkit. This is achieved through workshops, and through online webinars. Throughout this process, local stakeholders and multipliers are closely involved.

**RECENT MINI-GRID PUBLICATIONS**

**RISK MITIGATION FOR MINI-GRIDS BY USING THE PUMA CONCEPT AS AN APPROPRIATE BUSINESS MODEL**

*By Elmar Steurer et al., Vice President Research and Sustainability, Hochschule Neu-Ulm (HNU)*
For the time being, only few applications of mini-grids have fulfilled the expectations from an economic perspective. Main reasons for these failures can be traced back to improper or incomplete business models – not necessarily in the technology used. In other words, most of the mini-grids do not work properly. At a first glance the most two important reasons for that are as followed:

- Inadequate tariff design
- Lack of appropriate productive use to generate long-term incomes
- Conflict of interests due to overlapping targets of the stakeholders

For this reason, an extended scope on the business models could provide additional value and help to achieve long term success, in the areas of finance and sustainability.

Empirical evidence tells us that mini-grids may be designed perfectly with regard to technical features and functionality, but this does not at all ensure financial viability and a mid-term or even long-term economic sustainability. Of course, technical efficiency and functionality is absolutely necessary but it is not the sufficient condition for the success of a mini-grid. The article on hand concentrates therefore on the question,

- how an appropriate tariff design can be achieved
- how the necessary qualification development can be ensured and
- how stakeholders can be integrated successfully

... with the target that finally these mini-grids fulfil more of the expectations being connected to them.

Read the study here.

MICRO-GRIDS FOR RURAL ELECTRIFICATION: A CRITICAL REVIEW OF BEST PRACTICES BASED ON SEVEN CASE STUDIES

By Daniel Schnitzer et al., United Nations Foundation

A study of over a dozen micro-grid projects inaugurated by seven developers in three countries sought to determine why some such projects get trapped in vicious cycles of poor maintenance, disappointed customers, insufficient revenue and dysfunctional community support, while others
prosper. Seven key factors are identified: tariff design, tariff collection mechanisms, maintenance and contractor performance, theft management, demand growth, load limits and local training and institutionalisation.

The review can be accessed here.

**HOW A NEW BREED OF DISTRIBUTED ENERGY SERVICES COMPANIES CAN REACH 500MM ENERGY-POOR CUSTOMERS WITHIN A DECADE**

*By Pepukaye Bardouille & Dirk Muench, Senior Energy Specialist / Managing Partner, IFC / Persistent Energy Partners*

This thought-piece has largely been written in the context of growing interest in the potential of “mini-grids” to provide a solution to the energy access challenge. Taking a step back from a dogmatic view of specific systems as a panacea, it focuses on a technology-agnostic, market-driven approach to rapidly scaling up the availability of rural energy services – the distributed energy service company, or DESCO, model – that we believe, with the right conditions, could efficiently and cost-effectively reach somewhere close to 500mm people over the coming decade. The paper outlines the characteristics of the DESCO model and discusses how it is different from the more mainstream energy access approaches. It then puts forth a series of developments that, in our view, will need to be facilitated very soon for the model to realise its potential, with a particular focus on the amount and nature of financing that will be required for broader DESCO penetration. In so doing, it is our aim to stimulate a fresh debate on energy access and help to concretely advance the agenda because, despite increasing interest in this critically important area of basic service delivery, with the current modus operandi, there is a very real risk that the goal of achieving universal coverage by 2030 will simply not be met.

The publication can be downloaded here.
Due to continuing decreases in electricity production costs, as well as increasing deregulation for energy producers and rising electricity prices in many international energy markets, the sales and marketing of solar power represents an interesting and challenging new field of business.

With its new PV Investor Guide the German Solar Industry Association (BSW-Solar) provides a comprehensive overview and introduction into different business models for solar PV projects in international markets. PV business models that are covered by the PV Investor Guide are amongst others: PV-hybrid Mini Grid for off-grid applications, PV self-consumption for commercial and industrial applications, Net-metering for residential and commercial applications, Leasing solutions for self-consumption and net-metering projects and Direct sale of PV electricity (PPA) for commercial and industrial applications.

The PV Investor Guide was realised in cooperation with Intersolar Europe.