



Report

ECOWAS Renewable Energy Investment Week

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BANQUE D'INVESTISSEMENT ET DE DEVELOPPEMENT DE LA CEDEAO
ECOWAS BANK FOR INVESTMENT AND DEVELOPMENT
BANCO DE INVESTIMENTO E DE DESENVOLVIMENTO DA CEDEAO



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Introduction

The ECOWAS Centre for Renewable Energy and Energy Efficiency (ECREEE), in partnership with the USAID Regional Clean Energy Investment Initiative (RCEII), the Climate Technology Initiative Private Financing Advisory Network, the African Development Bank (AfDB), the ECOWAS Bank for Investment and Development (EBID), the West African Development Bank (BOAD, in French), and the Africa Biofuel and Renewable Energy Company (ABREC), organized the ECOWAS Renewable Energy Investment Week, from 8 to 10 October 2013 in Accra, Ghana. This year the Forum featured the first edition of the West Africa Forum for Clean Energy Financing and the second edition of the ECOWAS Renewable Energy Investment Forum. During the three days, Government officials, financiers, project promoters and other energy practitioners discussed the main issues related to mobilizing financing for clean energy projects in the West Africa region.

During the WAFCEF event, promoters of the ten selected projects presented their business plans and explained the rationale of investing in those businesses.

ECREEE introduced the EREI Forum by presenting its 2013 pipeline of renewable energy and energy efficiency projects and listed its ambitions in the Investment and Business Promotion Program, including the supportive actions planned for selected projects. The thematic area of risks related to investment in the region was raised and addressed by specialists including development banks, and organizations such as Frankfurt School-UNEP Collaborating Centre and CTI PFAN. At the end of the day, the political dialogue introduced by the United States National Renewable Energy Laboratory (US NREL) and facilitated by representatives of Governments in the region provided opportunity to discuss the actual framework of clean energy in member countries, and It was an opportunity for project promoters to engage in a frank dialogue with policy makers, who have as the mandate to create the enabling environment for project implementation.

Background of the ECOWAS Renewable Energy Investment Week

In 2012, ECREEE initiated its Renewable Energy Investment Initiative (EREI) by preparing a pipeline which includes all renewable energy and energy efficiency projects identified in the ECOWAS region. By mid-2012, over one hundred thirty (130) projects were recorded and ECREEE selected 41 among them for additional studies and presented to financing partners. Findings from the studies were presented on September 2012 in Dakar during the first edition of the ECOWAS Renewable Energy Investment Forum.

This year, ECREEE welcomed the Climate Technology Initiative - Private Financing Advisory Network (CTI PFAN) and the Regional Clean Energy Investment Initiative of the United States Agency for International Development (RCEII-USAID) and expanded the Forum to a week dedicated to promotion of renewable energy and energy efficiency in the ECOWAS region, including the inaugural cycle of the West Africa Forum for Clean Energy Financing (WAFCEF). Other partners to the WAFCEF included AfDB, EBID, BOAD, and ABREC.

The WAFCEF process started in April 2013 with a call for proposals for business plans, which attracted seventy two (72) projects from across the West Africa region. From the 72 projects, twenty two (22) were shortlisted to receive intensive mentoring on the structuring and development of their projects and support and advice on the preparation of a bankable business plan and related documentation. The shortlisted project promoters also attended a project development and financing workshop, held in Lome, Togo in July 2013 and which launched the project mentoring process. Later in the process 10 projects from the shortlist were selected to present their investor pitch at the WAFCEF investor forum in Accra during the WAFCEF Investor Forum.

Projects showcased at the West Africa Forum for Clean Energy Financing

Bioenergy Projects

Cook Stove and Ethanol Bio-refinery Plant Scale-up in Nigeria

Mr Femi Oye, CEO of SMEFunds presented this project which consists of scaling-up a bio-ethanol production unit using the promoter's proprietary and patented second generation technology. The bio-ethanol is further refined to bio-gel for use in efficient cook stoves, which are manufactured and distributed by an associate company. The promoter is seeking an investment of USD 19 million. The expected internal rate of return (IRR) is 16% and the payback period is 5 years.

Production and Commercialization of Bio-charcoal in Senegal

Mr. Nthie Diarra, Director of BRADES, presented this project which consists of scaling-up the production of bio-charcoal using invasive aquatic vegetation, and the expansion of the existing distribution network. The promoter is seeking an investment of USD 0.925 million. The expected internal rate of return is 15.99% and the payback period is 10 years.

Efficient cooking

Scaling Distribution of Clean Cooking Technology through a Partnership for a Cleaner Western Africa

Ms. Jessica Alderman, ENVIROFIT Communication Officer, presented this project which consists of establishing a new joint venture between Envirofit and Tower, to scale up the local manufacture of clean cookstoves and expand the existing distribution networks in Ghana and Nigeria to Benin, Cameroon, Cote d'Ivoire, Democratic Republic of Congo, Mali, Liberia, Senegal and Togo. The promoter is seeking an investment of USD 3 million. The internal rate of return is expected to be between 14 and 20% after five years.

Efficient lighting

Lighting Liberia

Mr. Richard Fahey from Liberia Energy Network presented this project which consists of scaling-up an existing business of imports and distribution of solar LED lighting kits and cell phone chargers to rural off-grid areas in Liberia. The promoter is seeking USD 1.05 million. The expected rate of return is 12% and the payback period is 5 years.

Sunlight "pay as you go" Solar Technology in Nigeria

Mr Segun Adju, CEO of Blue Ocean Energy, presented this project which consists on scaling-up an existing business of solar lighting kits distribution to rural off-grid communities in Nigeria, using a hire-purchase business model facilitated by mobile phone payments system. The promoter is seeking USD 2.15 million. The expected return on investment by end of year 2016 is 32%, and the loan tenure is estimated to range between 5 and 7 years.

Indigo Pay-As-You-Go Home Solar Services

Mr. Simon Bransfield-Garth, CEO of Azuri Finance West Africa presented this project which consists on expansion of an existing business for solar lighting distribution in West Africa using an innovative pay-as-you-go model based on proprietary software and hardware. The promoter is seeking an investment of USD 6.6 million. The expected return on investment is 20%.

Solar photovoltaic

Lojas Sta Claro

Ms. Maria P. Coruche and Sara Dourado from TESE presented this project which consists on the creation of a retail business for distribution of small scale solar PV systems to households and small businesses in Bafata, Guinea Bissau. The project will use mobile phone payments and a special vehicle to serve as a mobile store. The promoter is seeking USD 0.91 million investment. The expected return on investment is 18%.

Agricultural Production and Processing by Solar Power at Fakoly Farm

Mr. Mamadou Lamine Doumbia of GAMA Mali, presented the project which consists of the installation of a solar PV powered processing and storage system for temperature-controlled drying of agricultural products, including mangos, potatoes, and okra. The promoter is seeking an investment of USD 1 million. The return on equity is expected to be 61% during the first five years.

Small scale hydropower

Moyamba SSHP

Mr. Steven Taylor Lewis, CEO of Smol Pawa presented this small scale hydropower project planned on the Gbanga River, in the Southern province of Sierra Leone, for off-take by three bulk users, including a mining company, a nearby university and the local community through the utility. The project is seeking an investment of USD 40.1 million. The expected internal return is 14.5% and the payback period is estimated to be between 5 and 8 years.

Wave to power

Wave20 in Cape Verde

Mr. Olivier Ceberio, COO of Resolute Marine Energy presented this project which consists of installation and operation of a reverse-osmosis desalination system powered by wave energy in Cape Verde. The system will have a capacity of 4,000 m³/day. The promoter is seeking an investment of USD 19.8 million. The expected internal rate of return is 16% and the payback period is 7 years.

During presentations of these projects, a jury of six financial experts evaluated them and interacted with the promoters, questioning the premises and assumptions of their business models and business plans which had been prepared through the WAFCEF mentoring process and which had been submitted in advance.

The WAFCEF judges include Mr. Leo Blyth from the World Bank International Finance Cooperation (IFC), Mr. Alexander V. Q. M. Smits van Oyen from SOVEC Netherlands, Mr Joseph Adelegan from the ECOWAS Bank for Investment and Development (EBID), Mr. Nagaraja Rao from CTI PFAN, Mr. Godfrey Mwindaaare from Acumen Fund, and Mr. Musa Salah from ECOBANK Transnational Inc. The projects were evaluated on criteria, deemed to be critical for attracting investment interest.

As a result of the evaluation process, the judges selected the bioenergy project presented by SMEFunds as the winner of the WAFCEF Clean Energy Financing Award and designated three runners-up.

- The efficient lighting project for West Africa presented by Azuri Finance West Africa
- The 11 MW Small hydropower project in Sierra Leone presented by Smol Pawa Sierra Leone Ltd
- The Wave2O project in Cape Verde presented by Resolute Marine Energy.

These projects were awarded during the networking cocktail offered at the end of the WAFCEF event.

WAFCEF Projects Evaluation Criteria

- Definition and knowledge of the market
- Definition of products or services (Value Proposition & Innovation)
- Credibility of revenue generation and growth strategy
- Credibility of management and implementation plan (marketing and operations strategies)
- Achievability of projected revenues and credibility of financial projections
- Identification of threats and opportunities, protection of competitive advantage
- Suitability and effectiveness of risk mitigation strategies
- Focus on critical elements for success of project
- Environmental impact & developmental benefits
- Definition and of investor exit strategy potential

As part of the WAFCEF event, the African Development Bank (AfDB), the ECOWAS Bank for Investment and Development (EBID), and the African Biofuel Company (ABREC), partners of the WAFCEF also presented their actions for renewable energy deployment.

During their presentations, these organizations provided an overview of achievements in the clean energy sector, current on-going programmes and guidelines to access their funding.

Initial Outcomes of WAFCEF

As a result of WAFCEF one of the projects (the Moyamba SHPP) signed a NDA with Berkeley Energy, and entered into negotiations for a possible investment from the Africa Renewable Energy Fund; a number of other projects including SMEFunds (the winner of the business plan competition) and Azuri (one of the runners-up) also received investor interest leading to negotiations. In addition EBID expressed financing interest in the Fakoly Farm project in Mali and the BRADES bio-charcoal project in Senegal. All the showcased projects and a large number of the other shortlisted projects will continue to receive professional advice to support further project development, financing facilitation and negotiations with investors.

Projects showcased at the ECOWAS Renewable Energy Investment Forum

In 2103 ECREEE identified over seven hundred thirty (730) clean energy projects in the ECOWAS region among which five hundred sixty one (561) are renewable energy projects, including large hydropower projects. Thirty five (35) of those projects have reached a certain level of maturity, meaning that their promoters conducted feasibility studies and are engaged in mobilization of funding for their implementation. It is for those projects that ECREEE undertook the ECOWAS Renewable Energy Investment Initiative (EREI), whose main goal is to connect promoters with financiers. Ms. Aminata Fall presented twelve (12) priority projects selected from the 2013 pipeline.

Bioenergy

Cape Verde Waste to Mineral project

The project consists of implementation of a recycling unit to clean waste from oil companies in order to make them usable in a power generation plant. The project is planned in Mindelo, São Vicente Island. The promoter, Sector Verde Lda is seeking USD 2.55 million of investment. The expected internal rate of return is 19.26%.

Cote d'Ivoire Landfil Gas to Electricity project

The project consists of implementation of a recycling unit which will capture gas from an open landfill site located near Abidjan and an 8 MW power generation plant using the landfill gas. The project is seeking EUR 14.26 million. The expected internal rate of return is 23%.

Senegal Biomass to Electricity project

The project consists of implementation of a 15 MW power generation plant using an invasive plant, *Typha australis*, present in the Senegal River and rice husks produced by farmers established in the Senegal River valley. The promoter, SGI Senegal, is seeking EUR 38 million of investment. The internal rate of return is projected at 15.2%.

Solar Photovoltaic

Benin Solar Power Plant 1

The project consists of implementation of a 5.9 MW power generation plant in the city of Kandi, Northern region of Benin. The promoter, Nova Power, is seeking an investment of EUR 17.8 million. The internal rate of return is projected to be 15%.

Benin Solar Power Plant 2 and Togo Solar Power Plant

These projects consist of implementation of two 5 MW power plants, one in Djogou, Northern region of Benin and one in Kara, Northern region of Togo. The promoter is the Benin-Togo utility, Communauté électrique du Benin. Additional information on the investment scheme is available with the promoter.

Gambia Solar PV

The project consists of the implementation of a 20 MW power plant in the city of Birkama, West Coast region. The promoter, CAMAC, is seeking USD 42 million of investment. The expected rate of return on equity ranges from 17 to 30%, depending on the solar technology considered.

Ghana Solar PV

The project consists of implementation of power plants with an aggregated total capacity of 12 MW in different localities in the Northern region of Ghana. 2 MW are already installed and operational since April 2013. The promoter, VRA, is seeking EUR 30 million of investment.

Solar thermal

Burkina Faso CSP

The project consists of installation of a 35 MW power generation plant in the city of Ouagadougou, Burkina Faso. This project is a follow-up to the regional study on solar thermal potential of the ECOWAS region carried out by ECREEE in collaboration with

CENER Spain. The prefeasibility study completed shows an investment need ranging from USD 407 to 508 million, depending on the solar thermal technology to be considered.

Small Scale Hydropower

Liberia SSHP project

The project consists of the installation of a 1.5 MW small scale hydropower plant on the Mein River to provide electricity to the Suakoko District. The promoter, Winrock LESSP, is seeking USD 3.55 million. The internal rate of return is projected to 12.3% after completion of the first phase (0.5 MW) and 17.7% after completion of the second phase (1.5 MW).

Wind energy

Gambia Wind Project

The project consists of installation of a 4 MW power generation plant in the city of Tujereng, Western Atlantic Coast. In this area is already operational a 1 MW power generation plant. The required investment ranges between EUR 3.2-6.7 million, depending on the technology considered. The promoter is the Ministry for Energy.

Ghana Wind project

The project consists on installation of a 50 MW power plant in the city of Prampram, Greater Accra. The promoter NEK Ghana Ltd is seeking EUR 73.7 million.

Besides those 12 projects, ECREEE showcased six (6) projects from the pipeline selected within the Special Programme for Countries and five (5) sites selected within the USAID funded study on Solar and Wind Resource potential of the ECOWAS region.

The Special Programme for Countries is a new ECREEE initiative which aims at assisting promoters who have clean energy project ideas but cannot demonstrate their feasibility. The objective of ECREEE is to assist those projects on preparatory activities in order to get them ready for fund mobilization at the next edition of the EREI Forum. This year selected projects are:

- 23.2 MW Benin small scale hydropower located in the Oueme River. The promoter is the Ministry of Energy. Feasibility study of this project was carried out in 1992.
- 20 MW Ghana waste-to-power plant to be installed in Tema;
- 10 MW Liberia small scale hydropower project to be located in the Saint John River in Nimba County. The promoter is the Ministry of Energy. Technical feasibility of this

project was conducted by the China International Centre for Small scale Hydropower and its socio-economic feasibility was studied by TERI India.

- 7 MW Mali small scale hydropower project located at the Bani River (tributary of the Niger River). The promoter is the Ministry for Energy. Construction of a dam in the project site started on September 2011 with support from the African Development bank.
- 30 MW Niger wind power project located in Niamey. The promoter is the Ministry for Energy.
- 10 MW Nigeria small scale hydropower located in the Kano State. The promoter is the Kano State Government. There is a dam in the project site which was built on 1977.

In 2012, ECREEE undertook a study on Solar and Wind Resource Assessment in the ECOWAS region, part of the study is the selection of five sites which can host renewables power plants.

- Cote d'Ivoire solar PV site located in the city of Yamoussoukro;
- Gambia solar PV site located in the city of Jambajali (West Coast region);
- Nigeria solar PV site located in the city of Katsina;
- Senegal wind site located in the coastal area, in the region of Kebemer;
- Togo wind site located in the coastal area, between the cities of Aklakou, Grand Popo and Dakonji.

Rationale of Clean Energy Projects Showcased for the ECOWAS region

From the presentations and technologies showcased, we can have an idea of some priorities in the region, which support the rationale behind these projects and their selection for this edition of the ECOWAS Renewable Energy Investment Week.

Technologies Showcased

Bioenergy is the first ranked primary energy source of the West Africa region, around 70% of the population relies on this form of energy, mainly for cooking and processing of agriculture products. The bioenergy projects showcased during the week, while using various types of fuels and therefore technologies, demonstrated the same need of cleaner biomass energy available to households for reduction of pollution and conservation of forestry areas which decline every year because of unsustainable energy practices. One

application of biomass to energy is the recycling of wastes. With the expansion of cities, the ECOWAS region is confronted with a real problem of waste management, while a major part of those wastes contain organic materials which make them usable for power generation. The three bioenergy projects showcased during the EREI Forum use of different types of wastes (landfill gas, mineral oil, rice husks and typha) to produce electricity to the grid. Biomass energy for cooking showcased during the WAFCEF event is of particular importance as the use of this primary energy source is cause of internal pollution which impacts health, mainly that of the female population and also contributes to deforestation and environmental degradation.

By choosing SME Funds bioenergy project, the jury awarded an innovative business model, which addresses one of the main energy challenges the West Africa region is currently facing. The project is in line with the ECREE Bioenergy Programme (ECOWAS Bioenergy Strategy) and the WACCA.

The CTI-PFAN/ECREEE program is a springboard that has taken us to the next level. We now have the opportunity to raise the financing that will bring clean, stable, and affordable energy to millions of household across Africa. All what we are saying is that Cooking shouldn't kill. Why will our women cook with tears? Femi Oye, SME Funds

Efficient cooking is complementary to cleaner fuels; the efficiency of cook stoves impacts both the quantity of biomass resources needed and the level of pollution. During the past years, many of the ECOWAS countries improved their legislations to promote cleaner cook stoves as a solution to reduce desertification and its impacts on local economies, mainly driven by agriculture and livestock. However, as a result of the greater number of clean cook stoves which are present in the regional markets, the issue of standardization and labeling of this equipment is being raised more and more by stakeholders. This concern is one of the main pillars of the ECREEE Bioenergy and the Energy Efficiency programmes (SEEA-WA), which is currently ongoing. The clean cook stove project, presented during the WAFCEF, demonstrated in its actual markets (Ghana and Nigeria) qualities to be expanded in a highly competitive market.

Efficient lighting is a major concern of governments in the region as it impacts key sectors of the region's development agenda: education and health. The absence of lighting in many rural areas of West Africa constraints the education of the youth population and bind their aspirations of a better future compared to their peers in urban areas with modern lighting. The use of kerosene as a substitute to electric lighting, especially in Nigeria, is also a source

of indoor pollution which impacts the health of users. Solar lighting kits have been available in the region for many years and are demonstrated to be effective in resolving lighting problems in areas awaiting grid-connection and electricity access. The three projects, aimed primarily at Liberia and Nigeria, target markets where demonstrated demand exists and deploy innovative business models to underpin their service offerings, thereby strengthening their project rationale.

Small scale hydropower has always been an important source of power generation in the region. Among the eighteen (18) RE power plants operational in West Africa, fourteen (14) are small scale hydropower facilities. The ECOWAS region has a good potential for those facilities with major rivers across most member countries. The SSHP projects showcased during the EREI Forum and WAFCEF, located in Benin, Mali, Liberia, Nigeria, and Sierra Leone are good examples of community powered projects. In the case of the one from Sierra Leone there is a supplementary cause of interest as it also address demand of an international mining company, therefore contributing to the economic and social development of a region. This project can be a case study for the numerous mining sites of the region which are mainly located near catchment areas, particularly in Burkina Faso, Guinea, Mali and Sierra Leone.

Solar energy resources are the most widely distributed in the region. Radiation reaches an average of 5 to 6 kWh/m²/day, with many good locations (eg flat areas) facilitating installation. So far, the main interest in the region for exploitation of the solar resource focuses on grid-connected power plants as an alternative to the high reliance of the region on fossil fuel imports. That interest explains why 8 of the 23 projects showcased during the EREI Forum are large grid-connected solar power plants. These last years the solar technology costs decreased so fast that in some countries of the region that technology is near grid-parity. Those countries include Cape Verde and the Gambia. Three solar PV plants are operational in the region, two in Cape Verde (2.5 MW and 5 MW) and one in Ghana (2 MW).

Solar PV for productive uses, such as the one showcased during the WAFCEF event, is an interesting application to consider for the region, as agriculture is the main occupation of West Africa population and is often processed in small scale units. Solar and other RE technologies, for productive uses are of particular interest for ECREEE, which plans to include them in its upcoming activities within the rural electrification programme.

Wave to energy is a technology which is not yet experienced in the region but which may be interesting to consider, especially as a power source for desalination to support population growth and increasing pressure of demand for clean water. Regions which are located near the sea usually do not have access to enough ground water to meet the demand of those regions that attract a great number of new populations moving for the job potential offered by activities such as tourism, fishery, navigation etc. This population has a lack of water while living near a huge potential source which, however needs to be desalinated. Desalination technology is mastered since many years around the world, including in the region, with Cape Verde using it. By using waves to produce energy to power desalination, the project addresses simultaneously two critical challenges faced by the region: energy generation and clean water access. Experience in Cape Verde has shown that desalination systems consume lots of energy and this energy when saved by the wave-to-power system may be used to meet the demand of other end-users.

Wind energy as solar PV is of major interest for ECOWAS member countries as the technology is competitive compared to non-renewable energy technologies; however the wind potential of the region is not as high as the solar one. The resource is mainly concentrated in the coastal regions with highest regime in Cape Verde and Senegal. The coastal regions of Ghana and Togo and the Northern part of Mali and Niger also have good potential. The 25 MW wind farm located in Cape Verde is already operational. The 50 MW wind farm planned in Ghana is a typical grid-connected large project in the ECREEE pipeline, which demonstrated feasibility and appears to be a competitive alternative to fossil fuel based power generation.

ECOWAS Institutional Framework for Clean Energy

The political dialogue was one of the highlights of the investment week as it provided opportunity for participants to learn more about the status of play and for promoters to interact directly with policymakers on the actual policy framework which has a huge impact on project development and implementation with the ability to both promote and constraint development activity. Energy Ministries of four countries in the region with renewable energy legislation in place, namely Cape Verde, Ghana, Nigeria and Senegal, were represented. During their presentations of the institutional framework of renewables in their respective countries, all emphasized the long-standing political commitment of the region to clean energy sources, including renewable sources.

The framework in **Cape Verde** presented by Mr. Antonio Baptista, Director of Energy, showed that the country's commitment to renewable energy, with 32.5 MW grid-connected installations, is a necessity. Cape Verde is an archipelago which used to rely on fossil fuel imports for power generation making the electricity cost one of the highest in the region, due essentially to transaction costs related to the imports. The country has a friendly environmental framework which makes renewables competitive compared to non-renewable energy production. Cape Verde, these last years, improved its legislation to welcome investment on renewables in order to attain its national target of 50% renewable energy penetration in the energy mix by 2020. At the end of 2012, the penetration rate of renewables was 21%.

Ghana also presented an advanced legislation on clean energy with efficiency standards on appliances and incentive mechanisms adopted to promote investment on renewables. Recently, the country adopted Renewable Energy Purchase obligations and the feed-in-tariff mechanism, which has successfully supported market growth of renewables in other countries, particularly in Europe. The gazetted FiT, applicable since September 2013, shall be granted for a period of 10 years and subsequently be subject to review every two years. According to Mr. Oscar Amonoo-Neizer, Director of Energy of the Public Utilities Regulation Commission (PURC), the FiT legislation has attracted investment by both private and the Government, and this is evidenced in the number of requests being brought to the PURC.

Mr. Abayomi Adebisi, Director of Electrical Inspectorate Services Department at the **Nigeria** Ministry for Power presented the Renewable Energy Masterplan of Nigeria and the recently adopted Feed-in tariff mechanism. According to Mr. Adebisi this ambitious plan will contribute to achieve 95% of households to access modern energy and renewable energy to contribute to 20% of the entire energy mix.

Mr. Ismaila Lo, Director of the Solar Energy Division at the Agence Nationale des Energies Renouvelables of the **Senegal** Ministry for Energy, presented the current status of renewable energy regulation since the adoption of the Renewable Law in 2010 and the recently adopted Policy Development of the energy sector which encourages diversification of sources in the sub-sector of renewables. Within this context, the Ministry of Energy installed an interim Agreement Committee which is in charge of studying proposed renewable energy projects case by case, awaiting the adoption of the legislation, which foresees a tender process for grid-connected renewable energy projects. According to Mr. Lo, the Committee has already received twenty eight (28) renewable energy projects from

independent power producers (IPP). When selected, the projects are granted a commitment from the Government to purchase the power produced at an incentivized fixed price.

Project promoters expressed concern about the slowness observed in putting in place the presented incentive mechanisms and also about the absence of clear procedures and identification of the appropriate interlocutors during the process of fulfilling the institutional requirements within the implementation of renewable energy power plants. This request from promoters which comes up often during ECREEE meetings will be one of the priorities of the 2014 EREI Programme.

Over the past years ECOWAS has acted vigorously in recognizing the importance of energy to the welfare of our population, notably by, adopting the Energy Protocol, the ECOWAS/UEMOA White paper on Energy Access, and recently during the forty-two ordinary meeting of the Authority of Heads of State and Government, the regional policies on Renewable Energy and Energy Efficiency.
H.E Ebrima Njie, ECOWAS Commissioner for Infrastructures

Key Thematic Areas Addressed during the Forum

Risks of Renewables Investment in the ECOWAS region

Investment risk in the ECOWAS region is generally highly rated, notwithstanding the technology or service considered. The reasons of this highly rated risk include:

- The scarcity of communication/transport infrastructures which makes some localities of the region inaccessible during some periods or the all year. Those localities include rural areas of Liberia which actual situation constraints the implementation of the efficient lighting project presented during the WAFCEF Forum;
- The cost of doing business in the region, including the absolute cost of services and time spent on preparatory activities because of interlocutors' dispersal and overlapped legislation which add uncertainty to an already challenging economic environment;
- The format of projects business models which can appear to be unfamiliar to investors constraining the fund mobilization process. Related to that point is the lack of appropriate financing mechanisms for the various clean energy considering their size, level of maturity and market perspectives.

Apart from the political and economic related reasons of this risk rate, is the energy poverty which constrained many economic and social activities. Like in a vicious circle, this high risk also impacts the investment for additional energy production. Renewable energy technologies have two additional related risks attached to their use in the region, which are their lack of competitiveness compared to non-renewable technologies, which are in turn often highly subsidized by governments, and the lack of local available knowhow to operate and maintain the technologies. To address those risks, ECREEE is organizing capacity building events on clean energy technology use and management directed at government officials, energy regulation bodies, universities and utilities. Since 2011, more than 130 stakeholders in the region were trained on various aspects of clean energy.

However, it is important to note that the risk has also a subjective dimension that ECREEE tries to address by awareness raising, taking advantage of events such as the Renewable Energy Investment Forum.

Carbon Finance opportunities for Clean Energy Projects

As part of the investment week, a carbon finance training session for project promoters who are interested in exploring the opportunities offered by carbon markets was also organized.

Carbon Voluntary Market

Mr. Michael Schlup from Bunge Environmental Markets introduced the general carbon markets to participants in the training, with definition of key concepts such as primary CER and secondary CER, before focusing on the voluntary carbon market. The voluntary carbon market is the one non-regulated by governments and transactions are from the sole willingness of stakeholders involved. However, there are standards which reinsure the buyer on the quality of emissions reductions purchased. Mr. Schlup explained the characteristics of the voluntary market which makes it simultaneously an opportunity and a challenge for promoters of projects involving reduction of greenhouse gas emissions. He presented the current voluntary market as illiquid but still interesting to consider for project promoters. Mr. Schlup concluded with this observation that some years ago, before the financial crisis, the carbon market was overrated, today it is underrated.

Carbon Compliance Market

The compliance carbon market was presented by Mr. Chunyu Liang, from the Regional Collaboration Centre of the United Nations Framework Convention on Climate Change (UNFCCC-RCC). Mr. Liang started by introducing the general compliance market which is

from the Kyoto protocol adopted by governments and in the second part of his presentation focused on the procedures and requirements of the Clean Development Mechanism (CDM), from the project concept stage to the issuance of certified emissions reductions (CERs). The CDM cycle is described with the role of different stakeholders intervening during the overall cycle, including the project promoter, the Designated National Authority (DNA), the Designated Operational Entity (DOE) and the CDM Executive Board. Mr. Liang introduced also the new concept of programme of activities (PoA) under the CDM, which allows project promoters to join their projects to already registered programmes, and therefore reduce the transaction costs related to the CDM cycle. Joining a PoA can be done considering geographic area or project technology.

Parallel to the CDM training, ECREEE hosted a coordination meeting with partners to explain its ongoing programme and planning for next year, with a focus on the investment and Business Promotion Programme. Mr. Kappiah, who presented the Centre activities to participants, provided also updates on the status of the cooperation with partners. He announced that since the adoption of the business plan on 2012, planning signature of five new partnership agreements during the following five years to implement the planned activities, two agreements were already signed. Mr. Kappiah highlighted also the strong commitment of ECOWAS Commission to ECREEE activities with higher support to the Centre's work plan.

What's Next?

Following the Accra Forum, ECREEE is engaged to update its mid-term investment and Business Promotion Programme.

After two forums which showcased sixty four feasible renewable energy projects (41 in 2012 in Dakar and 23 in 2013 in Accra) to be implemented in the region, the Centre plans to upgrade its level of support by getting closer to project promoters and by taking initiatives which will link those projects directly to finance partners. In its next year's programme, ECREEE will also address the institutional related barriers which constrains the implementation of projects in member countries, for instance, the identification of the appropriate official interlocutors in member countries, the requisite permits and licenses, an estimation of the duration of the process from applying for a clean energy project implementation to the delivering of all licenses and permits. ECREEE will also help identify key stakeholders in member countries that can support projects implementation, including the equity providers, EPC contractors, operation and maintenance contractors. Our objective is to deliver the useful information to project promoters and to accompany projects on their

fund mobilization and implementation activities. The Centre will also continue to provide grant support to preparatory activities for selected projects and others in its pipeline.

For the 2014 edition of the EREI deployment, ECREEE will also include EE in its programme of activities. That will start with identification of projects in the region and financial institutions those projects may interest. The Centre is also planning training activities for a selected number of financial institutions established in the region on the rationale of clean energy business in order to improve their capacity for evaluation of those projects. That activity will be implemented in collaboration with energy efficiency institutions/organizations existing in member countries. ECREEE is implementing an energy efficiency programme since 2012 with competence centres established in all member countries. ECREEE is confident that a better understanding of the business by finance institutions, mainly micro-finance institutions (MF) will lower the perceived risk related to the projects and will encourage them to enter the business. ECREEE had identified hundreds of projects these last two years, from which 166 are small scale, community based clean energy projects. Those projects could be supported by MFIs which experienced sustainable growth these last years in the region.

Conclusion

This edition of the ECOWAS Renewable Energy Investment Week demonstrated once again the high level of commitment of the region and its partners to clean energy development. The participation and involvement of various stakeholders from Governments, development and commercial banks, academia and other private organizations showed that the region is ready to initiate its energy transition, because as made clear in the section on project rationale, this transition is necessary. To address the energy challenge faced by the region, the ECOWAS Authority of Heads of State contributed to enable the environment by adopting regional policies on renewable energy and energy efficiency, as a follow-up of years of commitment towards clean energy, since the adoption of the Energy Protocol on 2013. ECREEE is following up this high level of commitment by developing with member countries national renewable actions plans to comply with the regional legislation. However, to enable this environment under construction to be useful for ECOWAS populations, there is a need for additional energy to be generated by projects. The thirty projects (10 WAFCEF and 23 EREI), showcased during this Forum, demonstrate that promoters also understand the need for an energy transition. The three days' event, which facilitated the contact between promoters of the projects and potential investors / financiers was an important step forward for ECREEE and its partners' commitment to promote, create and support efficient and clean energy industries and markets in the ECOWAS region. This augurs well for the future development of clean energy in the region as ECREEE endeavours to encourage private

involvement in the sector. The interest shown by financiers for the showcased projects is a clear demonstration that clean energy is not only of political rationale but is also a business opportunity.

Annexes

Annex1: List of institutions/organizations represented

Name of organization	Location	Site Web	Contacts
Acumen West Africa	Ghana	acumen.org	hacquah@acumen.org
African Biofuel and Renewable Energy Company	Togo	www.faber-abref.org	graceodile@gmail.com
African Development Bank	Tunisie	www.afd.org	j.cunha@afdb.org
African Union-NEPAD	South Africa	www.nepad.org	mosade@nepad.org
AGENCE FRANCAISE DE DEVELOPPEMENT	France	www.afd.fr	bernard-hevrem@afd.fr
Agence Nationale des Energies Renouvelables	Senegal		gaideel1@yahoo.fr
ANOMENA VENTURES	Ghana		anomena@hotmail.com
Berkeley Energy	United Kingdom	www.berkeley-energy.com	andrew.reicher@btinternet.com
Bunge Environmental Markets	South Africa	www.bunge.com	Michael.Schlup@bunge.com
Cape Verde Direction of Energy	Cape Verde		antonio.baptista@mtie.gov.cv
Center for Green Revolution Studies, MDI-Ghana	Ghana		director.mdighana@gmail.com
CTI PFAN	South Africa	www.cti-pfan.net	kuroda@icett.or.jp
Daasgift Quality Foundation FNGO			mensahjennifer23@gmail.com
ECREEE	Cape Verde	www.ecreee.org	investment@ecreee.org
ECOBANK	Togo	www.ecobank.com	MSALAH@ecobank.com
ECOWAS Bank for Investment and Development	Togo		JADELEGAN@bidc-ebid.org
Enio Energy			doppan@hotmail.com
European Investment Bank-West Africa	Senegal	www.eib.org	r.lo@eib.org
Frankfurt School - UNEP Collaborating Centre for Climate and Sustainable Energy Finance	Germany & Kenya	www.frankfurt-school.de	fs_unep@fs.de
Ghana Energy Commission	Ghana	www.energycom.gov.gh	otu-danquahk@energycom.gov.gh
Ghana Institute of Sanitation and Waste Management	Ghana	www.tiswm.com	director@tiswm.com
Ghana Public Utilities Regulatory Commission	Ghana	www.purc.com.gh	info@purcghana.com
Ghana UNIVERSITY OF ENERGY AND NATURAL RESOURCES	Ghana	www.uenr.edu.gh	phyllop@gmail.com
GENDER AND ENERGY NETWORK	Ghana		micasab@hotmail.com
GIZ	Ghana		steffen.behrle@giz.de
GRIDCo	Ghana	www.gridcogh.com	info@gridcogh.com
International Finance Corporation-West Africa	Senegal	www.ifc.org	leoblyth@gmail.com

Nexant	USA	www.nexant.com	jamodeo@nexant.
Nigeria Ministry for Power	Nigeria	www.power.gov.ng	yomibisi@yahoo.com
Timely Ventures Ltd	Ghana	www.timelyltd.com	olumideakinsola@gmail.com
Novai Energy Ghana	Ghana		akasobasua@yahoo.com
REN21	France	www.ren21.net	laura.williamson@ren21.net
Robert Copper & Associates	Ghana		robert@rcaghana.com
SOVEC Netherlands	Netherlands	www.ovec.nl	sander@sovec.nl
Sunrise Solar Solutions			
United Nations Economic Commission for Africa	Addis Ababa	www.uneca.org	jattamensah@uneca.org
UNFCCC-BOAD Regional Collaboration Centre	Togo	cdm.unfccc.int	rcclome@unfccc.int
US National Renewable Energy Laboratory	USA	www.nrel.gov	Victoria.Healey@nrel.gov
Voice of Change International	Ghana		Voiceofchangeint@yahoo.com
Project Promoters			
Azuri Technologies Ltd	United Kingdom	www.azuri-technologies.com	info@azuri-technologies.com
Biofuels Revolution in Green Energy	Nigeria		euphratesrenewable@gmail.com
Biogas Technologies Africa Limited	Ghana	www.biogasonline.com	info@biogasonline.com
BlueOcean Energy and Technology Services	Nigeria	www.blueoceangr.com	segunadaju@blueocean-nigeria.com
ENVIROFIT	USA	www.envirofit.org	Jessica.alderman@envirofit.org
Ghana Capital Partners	Ghana	www.ghanacp.com	sidney@ghanacp.com
Green Energy and Biofuels	USA		m.samec@gebiofuels.com
Groupe d'Appui à la Modernisation de l'Agriculture	Mali		Mamadou.Doumbia@uqtr.ca
Liberian Energy Network	Liberia	www.lightingliberia.org	rpfahey1@yahoo.com
ONG ECOECOLO	Benin	www.ongecoecolo.org	gnangarosathenock@yahoo.fr
NU Safe as Limited	Nigeria	nusafegas.com	nusafegaslimited@ymail.com
Resolute Marine Energy	USA	www.resolutemarine.com	oceberio@resolutemarine.com
SB SPUMANTI NIGERIA LIMITED	Nigeria		sswoolu@sbspumanti.com
Sector Verde Lda	Cape Verde		sectorverdecv@sectorverdecv.com
SMEFUNDS	Nigeria	www.smefunds.com	f.oye@smefunds.com
Smol Pawa Sierra Leone Ltd	Sierra Leone	www.smolpawa.com	staylorlewis@smolpawa.com
Solar Light Co. Ltd.	Ghana	www.solar-light.com	mawuli@solar-light.com

Sunrise Solar Solutions Limited	Ghana	www.sunrisesolarsolutionsltd.co.uk	redeemerkowu@yahoo.co.uk
Synthesis Group International	Senegal		dioppeter@hotmail.com
TESE - Development Association	Guinea Bissau	www.tese.org.pt	s.dourado@tese.org.pt
YESA	Senegal		damelfall@gmail.com

Annex 2: EREI Forum Presentations

Presentations made during the EREI Forum are available online.

<http://www.ecreee.org/event/ecreee-cti-pfan-and-partners-organized-ecowas-renewable-energy-investment-week>.

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