13th Annual Meeting of CLUB-ER

“Sustainable Rural Electrification Projects: Tariffs for Mini Grids”

04 – 08 September 2017
Lusaka - Zambia

FINAL REPORT
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Introduction

Regularly, every year, the CLUB-ER organizes its thematic meeting and this year - according to its status the African Association for Rural Electrification also organizes its 2nd General Assembly. For this year 2017, which was the 13th Annual Meeting, the event took place in Lusaka - Zambia from 04 to 08 September with the support of the Africa-EU Energy Partnership (AEEP), Institut de la Francophonie pour le Développement Durable (IFDD), Agence de l’Environnement et de la Maîtrise de l’Energie (ADEME), Common Market for Eastern and Southern Africa (COMESA), Alliance for Rural Electrification (ARE), Practical Action, Strathmore University, Government of Zambia, REA Zambia and the participants themselves.

With the support of the AEEP, a training on the theme “Sustainable Rural Electrification Projects: Tariffs for Mini Grids” was organized on Monday 04 and Tuesday 05 September 2017.

Participation

This event was attended by seventeen (17) members, seven (07) were excused and twenty (20) were absent from forty-four (44) official members. Among the associate members, they were six (06) out of thirteen (13) members.

Zambian companies assisted the training (list attached). In the same way, this annexed document lists the numerous partners accompanied by the CLUB-ER and its members.

In total, this training brought together more than 80 people.

Capacity building / Training

The attached document summarizes the course of the training sessions given during these two days.

Thanks

The members of CLUB-ER as well as the Executive Secretariat and all the participants thank the AEEP for its support.

The CLUB-ER renews its availability to accompany the AEEP in the establishment of an environment favorable to the programs of access to electricity.

September 2017
13th ANNUAL MEETING OF CLUB-ER
TAJ PAMODZI HOTEL (Lusaka / ZAMBIA) – September 2017

Topic: “SUSTAINABLE RURAL ELECTRIFICATION PROJECTS: TARIFFS FOR MINI-GRID”

REPORT

The thematic days were opened by a series of speeches, including:

- A welcome speech by Mr. Geoffrey MUSONDA, Chief Executive Officer of Rural Electrification Authority Zambia;
- A welcome speech by Mr. Norbert Konan N’GORAN, Director of Energy Efficiency and Renewable Energies Côte d’Ivoire, representative of the President of CLUB-ER;
- A word of encouragement (via video) by Mr. Bernard DUBOIS, Deputy Director of the Institut de la Francophonie pour le Développement Durable IFDD Québec;
- A message of support from Mr Malama CHILESHE, Energy Economist - Infrastructure Division COMESA Secretariat, Zambia;

This opening session punctuated by a traditional animation was followed by taking a group photo and a coffee break.

D1; Monday, 4th September 2017

Mrs. Jacqueline Musonda, Director of Support, REA Zambia presented the electricity sector of the host country.

The energy sector in Zambia

Electricity production in Zambia is largely dominated by 85% hydro power. The access rate is 31% of which 4% in rural areas.

At least 10 categories of actors are present in the sector, specifically the consumers, the Ministry of Energy, the regulator, the IPP promotion office, the REA, the national company ZESCO and private operators of different sizes…

The definition of the mini-grid in Zambia is the isolated network with a decentralized generation whose voltage does not exceed 11kV.

Many mini-grid projects in solar and micro and mini-hydro are under study or in the course of implementation.

The REA created legally in 2003 and operational in 2006 has a target to increase the access rate to electricity to 51% in 2030. For this, it has tools including the master plan, a legal and regulatory framework that REA promotes, a dynamic private sector, financial capital to accompany the private sector in feasibility studies, construction and in management and operation in a PPP framework

Challenges and lessons learned were presented. Among these, it is held that the failure to adopt the truth of prices for the cost effective of electricity in rural areas makes escape the private operators; There is
also the high cost of studies, the absence of an industrial fabric on site for the local manufacture of equipment, the need to regularly reinforce the capacity of the stakeholders.

For better management, the adoption of prepaid systems should be encouraged. The productive use of energy is also to be promoted.

The session was subsequently followed by presentations from members of the CLUB-ER.

“Madagascar: Transition énergétique: un défi, une réalité?” by Mr Mamisoa RAKOTOARIMANANA, Executive Secretary of ADER.

It is a question of changing the paradigm with a very ambitious objective to reach a rate of access to electricity to 70% within 15 years. In this challenge, it is necessary to increase the rate of access to electricity in rural areas by 4 points in the next 3 years, i.e., to allow 1,200,000 inhabitants to access electricity equivalent to 160,000 connections.

These objectives can be achieved by massively developing renewable energies.

The legal and regulatory framework is undergoing a facelift to make the sector attractive.

“Contexte malien de l’électrification rurale” by Mr. Mamadou OUATTARA, Chief Executive Officer of AMADER

The PPP approach defined under 2 models authorisations and concessions allowed to increase the rate of access to electricity to 17% if it was 1% 13 years ago. This has led to the development of a new business (as an electricity manager) and the creation of direct and indirect jobs. The success of AMADER's first 13 years of operation has attracted funding from various partners such as World Bank, AFD, IDB, private operators, …

In view of the equal treatment of citizens, the GoM is now considering tariff equalization between rural and urban areas.

We also consider the connection of mini-grid on the national grid while retaining the management by the private firm.

Finally, Mali is in the process to introduce a tax on the kWh sold for rural electrification.

“Sustainable Electrification in Malawi” by Mr Sukasuka TOPHAM BLENARD, Deputy Director, Department of Energy Affairs

In Malawi, the access rate is still very low. It is 10% in urban areas and 1% in rural areas. The objective is to increase these rates to 50% and 30% respectively by making best use of hydraulic energy.

As a tool, Malawi has a regulatory framework that was renewed in 2016 which resulted in the separation of ESCOM's activities into a production company and a distribution and transmission company. This 2003 text also made it possible to create the regulator and the rural electrification agency.

The objectives mentioned above can be achieved with an approach to energy management, energy efficiency, reduction of losses, construction and maintenance of new grid and the installation of the new power stations.
“Rural Electrification context in Kenya” by Ms Eunice Wambui, Senior Economist REA Kenya

The rural electrification program was implemented in 1973. Operations were strengthened in 2007 and the REA aligned its objectives with vision 2030 where all Kenyans must have a better quality of life. This translates into the electrification of all community buildings (schools, colleges, health centres, markets, town halls, etc.) and the connection of 1 million households in rural areas.

68% of these community buildings are now electrified. 83% of the financial resources used are locally available. Only the remaining 17% is provided by donors.

Two strategies are adopted: the grid-extension and the decentralized.

The decentralized solution requires the use of solar photovoltaics. In spite of everything, sites remain equipped with diesel thermal generator and are gradually replaced with these tools of production by hybridizing with solar PV.

Mini-grid projects are being developed through government funds and partners such as IDA through the Kenya Electricity Modernization Project (KEMP). Private companies intervene directly in this context of mini-grid thanks to a law that facilitates their activities.

This presentation of REA Kenya closed Monday morning session.

After lunch, Mr Davide BIXIO from the Delegation of the European Commission in Zambia delivered his introductory speech on the training provided by EUEI-PDF through AEEP / EA WS.

The European Commission renews its support for rural electrification programs in Africa and will continue to support the CLUB-ER through the EUEI-PDF and its branches.

Country presentations were subsequently made:

“Le secteur de l’électrification rurale au Burkina Faso” by Mr. Yacouba CAMARA Director General of the ABER

The approach to rural electrification in Burkina Faso is based mainly on cooperatives (COOPEL). These cooperatives devoid of means (technical, organizational, financial, etc.) ensure the relay between the end users and the licensing authority and the energy supplier.

The tariff is regulated. Previously, it depends on the COOPEL business plan (before 2009). As a result, tariffs for different consumers (which may be of the same category) are different.

Then, the government decided to standardize all this since 2009: hence the tariff, by order, of wholesale SONABEL to COOPEL to 75 FCFA/kWh. Another Order sets the retail price schedule to final consumers.

Recently, the Fonds de Développement de l’Electrification (FDE) was changed by Agence Burkinabée de l’Electrification Rurale (ABER).

"La tarification de l’électricité en Mauritanie" by Mr. El Kory MHEITY, General Director ADER

For the delegated rural area, the tariff is based on consumption.

For the SOMELEC perimeter, the tariff is based on the subscribed power
"Sustainable Rural Electrification projects in Uganda" By Mr Henry SEMAGANDA, Senior Network Engineer Engineer REA Uganda

The rate of access to electricity is 21% and only 10% of rural households have access to electricity.

Under the 1999 Sector Reform Act, electricity generation, transmission and distribution activities are liberalized. This law also allowed the creation of the REA and the regulator.

The objective is to increase the electricity rate to 26% in 2022 by connecting 1.28 million new connections on the network and 140,000 off-grid. Universal access to electricity must be achieved by 2040.

The regulator is responsible for setting up and approving electricity tariffs.

Rates are based on usage. For example, domestic users pay 20 cents US/kWh.

Uganda has also introduced the Feed-In-Tariff applicable for renewable energies ranging in size from 0.5MW to 20MW and for power stations connected to the grid.

This REFIT has increased energy production, facilitated access to energy for more than 200,000 households and increased private investment.

A study is now under way (AfDB financing) to update the tariff schedule in Uganda.

The day closed with a training session entitled "Rural electrification policy approaches and experiences" by Mrs Mary WILLCOX of Practical Action Consulting.

This training was introduced by Mrs Hadley TAYLOR from EUEI-PDF / AEEP. This introduction focused on the presentation of the EUEI-PDF.

With a multi-year experience in various countries, the consultant summarized the policy approaches and proposed the contexts of the countries studied in the field of pricing and regulation.

A categorization of the policies could be carried out according to the technology, the model (private, public, PPP), legal bases, tariff regulation, financing, tools (planning, ...)

The session was closed by group work. Each participant present had to classify his country according to the criteria mentioned above in order to classify them in one of the proposed categories.

**D2: Tuesday, 05 September 2017**

The second day began with the presentation of the work of Mr. Alejo LOIRA of MRC Consultants and Transaction Advisers on the tariff toolbox. This tool was developed for the ECOWAS countries on the basis of a ECREEE project funded by the EUEI-PDF.

Then, the day was opened by Mr Crispen ZANA of the EUEI-PDF. He presented the context of MRC's intervention.

After conducting a retrospective study and comparative analysis of existing tools, the consultant consulted with regional stakeholders (ECOWAS) on self-producers, independent renewable energy producers and renewable-energy mini-grid operators. The conclusion of this study and this analysis enabled him to build a model and a tool already tested in Gambia and Cape Verde.

For the mini-grid, the model developed reflects the total investment and operating costs. Of course, other models exist on the market but considering the time, it was difficult to develop them.
A case study was subsequently carried out with the participants

Members of the CLUB-ER are invited to express their opinion on the need to study thoroughly with more detailed training over several days.

After the coffee break in the morning, 4 participants presented their country’s pricing model:

- **Burundi** by Mr. Jacques DUSABUMWAMI, Director General of ABER:
  Tariff setting is an assignment of the regulator. The texts state that electricity must be supplied in the best conditions of cost and economic efficiency; the objective being to recover all costs (including service, maintenance, capital).

- **Niger** by Mr Mourima MAI MOUSSA, Director of Engineering at ANPER:
  The tariff principle is based on two principles: 1) the sustainability of the electricity service price for rural households and 2) the compensation mechanisms to ensure the financial equilibrium of the investor / operator (subsidy, tax exemption, etc.) In rural areas, 2 categories are used: domestic users (package pricing) and professional users (pricing - unregulated according to a grid defined from the business plan. The regulator ensures that the subsidy is reflected in the tariff).

- **Madagascar** by Mr Andry ANDRIANTSILAVO, Director of Planning at the ORE:
  The tariff principle between the dealer and end users is based on marginal costs (structure reflecting supply costs - production, transport and distribution, on the basis of 15 years demand forecast and corresponding development plan). It is then developed on a formula composed of a tariff with the power and a tariff related to the consumption (energy). An adjustment mechanism is provided.
  The tariff between the dealer and the central buyer is negotiable.
  The tariff between the dealer and the end user in rural areas and function of the business plan, and the subsidy.

- **Zambia** by Mr Alfred MWILA, Director Economic Regulation at the ERB. The tariff is a mission of the regulator. The tariff is based on the following principles: recovery of costs incurred by the company; financial balance of the company, price truth, need for quality of service and consideration of vulnerable groups.

After the lunch, participants had the privilege of hearing from the 6 Young Energy Access Leaders represented by Mrs Astria FATAKI, Founder & President Energy Generation; Mr Sayouba GUIRA, General Director Nafa Naana; and, Mr Simon KIRAGU, Strategic Partnerships Manager POWERHUB,

Each Young Leader presented his project and concluded their intervention by reading the advocate (available in the annex).

The opportunity was also given to introduce Strathmore University in Nairobi - a member of the AEEP / EA WS. The presentation was made by Mr Geoffrey RONOH, Director.
Following the presentation of the Young Leaders, a private company and a foundation (NGOs) presented their know-how.

- **POWERHIVE Ltd** with Mr. Zachary AYIEKO, Executive Chairman. At US shareholders, it is the second largest dealer in Kenya. The firm is implementing solar-based mini-grids. Their business model is based on the combination of two principles: the use of digital (payment by mobile phone - pay-as-you-go) and the systematic introduction of productive uses in the localities to be electrified. The price is based on the cost effective. Below a short video to illustrate this presentation. [https://drive.google.com/open?id=0B9_AR9DQWDyERTU2V293OHFTVVU](https://drive.google.com/open?id=0B9_AR9DQWDyERTU2V293OHFTVVU)

- **Fondazione ACRA** with Mr Nicola MORGANTI, President. The foundation is active in Tanzania on hydroelectric projects (300kW). It is a community management. The key to the success of this project lies in the total involvement of all stakeholders from the start of the project (study) to its operation.

After the coffee break in the afternoon, Ms. Emma COLENBRANDER of Practical Action Consulting gave a presentation on the social dimension of rural electrification and productive use. It was mentioned that rural electrification must be based on commercial foundations, hence the need for productive uses; the sale of energy by the dealer will thus constitute a satisfactory revenue. She also mentioned that the implementation of productive uses requires a support: spare parts circuit, after-sales service, advice, choice of efficient equipment, etc. An example on the GIZ project in Madagascar concluded the presentation.

These thematic days were successful thanks to the support of partners

- EUEI-PDF through AEEP / EA WS and its members (ARE, Practical Action, Strathmore University and CLUB-ER).
- REA Zambia
- COMESA
- POWERHIVE
- ENGIE
- Fondazione ACRA
- KAFITA cooperative society Ltd

Prospects for partnerships between CLUB-ER members and certain participants, between CLUB-ER and its partners will be set up.

*September 2017*