European Commission

Empowering Development

Delivering results in the Decade of Sustainable Energy for All

DG International Cooperation and Development

Europe Direct is a service to help you find answers to your questions about the European Union.

Freephone number (*):
00 800 6 7 8 9 10 11

(*) The information given is free, as are most calls (though some operators, phone boxes or hotels may charge you).

More information on the European Union is available on the Internet (http://europa.eu).

ISBN: 978-92-79-47821-5
doi: 10.2841/452935

Cover photo: Pal Teravagimov / Shutterstock.com

Printed in Belgium

Table of contents

For more information on energy projects,

an outline of projects funded under the ACP-EU Energy Facility and a list of non-selected projects under the latest Call for Proposals on Rural Electrification, please check the following link:

http://ec.europa.eu/europeaid/sectors/energy_en

Delivering results in the Decade of Sustainable Energy for all (SE4ALL)

Neven Mimica,
EU Commissioner for International Cooperation and Development

Delivering results in the Decade of Sustainable Energy for all (SE4ALL)

Neven Mimica, EU Commissioner for International Cooperation and Development

Energy is fundamental to sustainable development and economic growth across the world. Developing countries increasingly need to provide reliable and clean sources of energy to their populations in order to put in place basic services in areas such as health and education and to power their economic potential. With 1.3 billion people living without access to electricity and the basic benefits and opportunities it provides, and 2.6 billion people using wood charcoal and traditional biomass for cooking fuel, the challenges linked to energy remain immense. The close link between the exploitation of energy sources and global climate change is also obvious.

The EU, a key partner in the energy sector

Energy has been a priority in the portfolio of the EU's poverty alleviation and eradication strategies for many years. The discussions on the post-2015 development agenda have identified a close relationship between energy and development and the objectives to be set in the framework of the new sustainable development goals. The EU has taken up this challenge in a systematic and coherent manner. In cooperation with all its international partners, the EU has developed a multi-level approach to face the challenges linked to energy poverty.

Encourage a reinforced political dialogue

Reinforcing bilateral and multilateral dialogue and ensuring strong political engagement by all actors and partner countries is the first step. A sufficiently stable regulatory environment will also encourage a range of different actors to take part in the effort and attract the necessary investments.

The EU encourages strong political ownership on the part of our partner countries, backed by support to create the necessary implementation capacity and conducive financial arrangements and market security that is necessary for the development of the energy sector.

Countries and regions working together

Thirty partner countries have included energy as one of the main focuses of their bilateral cooperation with the European Union in the new programming period. Energy cooperation forms an integral part of regional cooperation efforts as well.

The EU has signed a number of joint declarations with European and African countries that have decided to work together in the field of energy. These declarations reinforce the political ties between partner countries' political commitments in the field of energy and the supporting actions financed by the EU and relevant donors with targeted partner countries.

As the first countries have taken the initial steps towards operationalizing these declarations and creating solid roadmaps to energy development, more countries are ready to follow the same path.

The EU is leading the effort at its own level with the creation of an ambitious energy union between its 28 Member States. The rules governing and supporting this effort, as well as the expected results for growth and the economy, constitute a model for the expansion of cooperation between countries, regions and continents and an opportunity for industrial and technological advancement.

Creating an enabling environment that allows for transparency, policy and regulatory reforms, cost-recovery and investments;

Establishing an adequate regulatory framework is the second important step towards a sound energy sector. This in turn will attract upstream investments that can improve the service provided to current customers and allow new connections to be made. This will allow for greater business opportunities, which will lead to more jobs, new renewable energy sources and new activities. At the same time, we will have to pay particular attention to empowering energy users that play a crucial social role, such as SMEs, rural communities and, in particular, women.

Supporting a technology leap – a Technical Assistance Facility ensuring a sound policy and project development and capacity building

The sustainable use of energy is closely linked with technology and bound to sustainable economic growth. The EU has put in place a dedicated Technical Assistance Facility to support directly preparatory actions in the energy sector. This is necessary in order to provide the best level of policy planning and support to our partner countries. Such Technical Assistance aims to generate a technology leap in renewable energy and energy efficiency, catalysing the development of energy policies and helping the development of projects and their financing.

Innovative financial instruments

The upscaling of sustainable energy projects can only be ensured by mobilising all available forces and actors and, specifically, funding from the private sector. After close analysis of the stakeholders' views and after having identified barriers to the development of energy project financing, the EU has developed a set of innovative financial instruments that can be used to close the financing gaps and allow project conclusion.

Policy coherence and the need for close cooperation with all partners towards sustainable development goals post 2015

Looking at the increasing importance of energy on the international agenda, I am happy to see so many of our international partners joining the fight against energy poverty. A key element in building a strong coalition is the recognition of energy access as a Sustainable Development Goal, thus keeping the momentum for the next decade and a half.

The EU will continue to stand alongside our partner countries. We have allocated more than 3 billion euro worth of grants in support of sustainable energy up to 2020. These actions are expected to leverage investments exceeding 15 billion euro in loans and equity investment, thus filling the gaps in financing for energy infrastructure, for powering businesses, schools, homes, community centres and hospitals.

Access to safe and reliable energy resources is something that we take for granted. Flicking a switch or turning on a tap provides us with the power we need to do our work, heat and cool our homes, cook our food, keep our schools and hospitals open and generate industrial and economic growth.

Things are not so simple for hundreds of millions of people in the developing world who have to spend too much of their time and efforts in accessing the energy that they need to live from day to day.

Providing sustainable energy for all needs to be a priority in our international development efforts. The European Union is pursuing this objective through its own development spending instruments and in the international negotiations on the post-2015 development agenda.

Our collective efforts on energy access and energy poverty will help to ensure a fairer and more equitable world for all.

Neven Mimica

1

EU actions and tools in our energy cooperation

Fernando Frutuoso de Melo,
Director General for International Cooperation and Development

EU actions and tools in our energy cooperation

Fernando Frutuoso de Melo, Director General for International Cooperation and Development

Energy – crucial for development

Addressing the lack of access to clean, reliable and affordable energy services for billions of people is one of the most critical development challenges of our times. Access to sustainable energy figures prominently on the international aid agenda in the fight against poverty. It is also at the forefront of our Climate Change policy.

Worldwide, about 1.3 billion people have no access to electricity and an additional billion only have access to unreliable electricity networks. More than 2.6 billion people rely on solid fuels, such as traditional biomass and coal, for cooking and heating. Taking into account the future demographic projections and implied pressures, these figures could grow exponentially and the challenges could become ever more substantial and complex. A well-performing energy system that improves efficient access to modern forms of energy should strengthen the opportunities for the poorest people on the planet to escape the worst impacts of poverty. Sustainable energy is central to providing opportunities for inclusive, equitable and environmentally friendly economic growth and poverty eradication. It will create new job opportunities across the board, and more specifically for women and young people. The move towards low-carbon and resource-efficient energy models will build on global climate mitigation actions.

For over a decade now, the fight against energy poverty has been a driver of our development agenda. Efforts started in 2004 with the creation of the EU Energy Initiative as a collaborative platform between the European Commission and its Member States and continued with an outreach to our African partners with the Joint EU-Africa Partnership in 2007. Drawing on this experience, our 2011 policy document; Agenda for Change sets energy at the heart of the EU's development policy.

To make this energy based strategy into a reality, and with the increased impetus provided by global initiatives such as Sustainable Energy for All (SE4ALL), the EU developed a comprehensive set of actions over the last 3 years and rolled out more than 4 billion euros for the fight against energy poverty. Most of this funding takes the form of grants, and is used to manage further investments by private and public actors for about 20-25 billion euros. We will build further on our cooperation with the more than 30 countries that have chosen energy as a focal sector for their bilateral cooperation with the EU. Cooperation with other partners can be strengthened through our thematic actions and a further engagement at regional and continental level.

The challenges are numerous, with developing energy markets still having to overcome many obstacles in order to achieve regulated and sustainable energy services. The lack of technical qualification of the workforce undermines the effectiveness of public authorities and power companies. Poor payment recovery performance and non-cost-reflective tariffs can jeopardise the financial stability of utility companies and a small customer base makes it difficult to assemble the necessary funds for rapid expansion of the electricity sector.

The EU in a bid to find solutions to the main challenges has adopted a comprehensive and long term approach. We are creating an enabling environment to allow for transparency, policy and regulatory reforms, cost-recovery and reinvestment. We refocused our support to large infrastructure projects with specific guidelines. At the same time we are developing innovative financing schemes, such as ElectriFI, that combine EU funds with private sector investments in a revolving manner in order to make small and medium-sized energy projects bankable. Furthermore we will also assist those which the private sector cannot reach with grant based projects.

This approach is being rolled out by the EU, along with its Member States, international organisations, and other public and private actors, and the relentless efforts of our people in Delegations across the globe, all working together to transform these shared goals into a reality for the world's energy poor.

This brochure provides an overview of how the EU is transforming its commitments to actions. It presents the tools and financial resources deployed and the results achieved to date, while also providing an insight on how we intend to tackle the energy conundrum in the coming years.

1. Increasing the impact of EU Development Policy: an Agenda for Change, Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the regions, October 2011

2

Catalysing reforms – making change happen

The EU's Technical Assistance Facility (TAF)

Catalysing reforms – making change happen

The EU's Technical Assistance Facility (TAF)

Better public services, such as better education facilities, a functioning health system and a productive agricultural sector, are all essential in the fight against poverty and depend on reliable access to energy. In order to foster the development of the energy sector in Africa, the EU encourages comprehensive sector reforms, conducive policies as well as regulatory frameworks which are crucial and go hand in hand with the creation of an enabling environment for private investments.

This is the reason why the EU has launched a Technical Assistance Facility (TAF), to assist partner countries in fine tuning their energy policies and regulatory frameworks to allow for increased investments in the energy sector. It supports countries which are committed to reaching the Sustainable Energy for All (SE4ALL) objectives, in particular those who selected energy not only as one of the priority areas of their national policy agenda, but also chose energy as a focal sector in their bilateral cooperation with the EU for the period; 2014-2020.

The Facility's purpose is to deliver high level technical assistance at country and regional level through expert missions mobilised at short notice and to support committed countries in significantly scaling-up investments in the energy sector.

In this direction, three EU Technical Assistance contracts have been signed under this Facility. The first covers Central and Western Africa, the second - Eastern and Southern Africa and the third - Asia (including Central Asia), Neighbourhood, Latin America, Caribbean and Pacific.

Main objectives

Since its launch, the Facility has been working to fulfil its main objectives, namely to:

- Increase the partner countries' administrative and technical capacity for sector policy analysis, its development and implementation,
- Accelerate and implement positively, efficiently and effectively sector reform policies on access to sustainable energy, energy efficiency and energy supplies, and
- Facilitate the implementation of the investment projects needed to meet the overall SE4All objective of making modern energy services accessible to all.

Main activities of the TAF

Through targeted expert missions to the partner countries, five types of technical assistance packages are delivered:

- **Policy and reform:** Following a comprehensive review of the institutional set-up in each country, the Facility assists the national stakeholders in defining a coherent way forward as regards the required national action plans, legislation and regulations and in creating enabling policies and regulatory frameworks as tools for advancing the development agenda.
- **Capacity building:** The Facility goes beyond addressing technical constraints on policy, regulation and engineering. It focuses also on capacity building, as a prerequisite for a sustainable implementation of such policies and regulations, and a necessary step in the development of knowledge and skills on the use of Renewable Energy and Energy Efficient technologies in each country.

- **Investment projects planning support:** Towards the effective development of the energy sector, this assistance package is taking a crucial role. The TAF supports partner countries in prioritising and preparing their infrastructure projects especially in ensuring the relevance of projects and overall coherence with national policies.
- **Mobilising funds and partnerships:** The leveraging of funds and their innovative use are key to harnessing the existing energy potential in Africa. Funds from a diversity of sources, development banks, local and international private sector, public sources, are brought together with the support of technical assistance to help bring selected sustainable energy projects to completion.
- **Industrial and technology cooperation:** Finally, in order to ensure a coherent and effective know-how exchange between the stakeholders, the Facility supports the establishment of regional networks gathering local and international professionals, at regional as well as country level, across the various technologies and sectors.

Method of work

The in country missions are supported by full time key experts on the three contracts who provide guidance and support. At HQ; DEVCO unit C5 Water, Energy, Infrastructure together with the EU Delegations are managing the contract and following closely all activities.

European Commission
DG International Cooperation and Development
Directorate C – Sustainable growth and Development
Unit C5 – Water, Energy, Infrastructure

L-41 3/053 - B-1049 Brussels/ Belgium

For Africa:
Georgios.Grapsas@ec.europa.eu
For Asia (including Central Asia), **Neighbourhood, Latin America, Caribbean and Pacific:**
EuropeAid-EU-TAF-ENERGY@ec.europa.eu
or contact:
Anca-Maria.Simion@ec.europa.eu

Several missions have already been undertaken by the Technical Assistance Facility (TAF); assistance missions were undertaken in Liberia, Burundi, Rwanda, Eritrea, Ivory coast, Nigeria, Togo, Cape Verde, as well as to Mozambique and to Ghana and many more are still to come.

Reshaping the legal and regulatory framework of the **Liberian** energy sector

Following various meetings with government representatives, private sector stakeholders and other international donors present in Liberia, the Facility has explored ways for improving the functionality, efficiency and effectiveness of the Ministry of Land, Mines and Energy of Liberia. One of the key recommendations has been the establishment of an energy sector regulator, as foreseen also by the energy policy adopted in 2009 by the Liberian government, which will support the country in its endeavour towards affordable energy for all. In parallel, the EU, through the Technical Assistance Facility, has also joined forces with the international donor community in the efforts to support the government in finalising the country energy law, which is expected to be proposed for adoption later this year.

Fostering energy projects in rural **Liberia** by empowering the relevant national agency

Liberia is known to be the country with the lowest national rate of energy access worldwide. Significant efforts have therefore been engaged by the EU to support the development of the country's energy sector in general, and in particular of rural energy solutions.

In this respect, the Rural Renewal Energy Agency, as the body in charge with the development and promotion of rural energy and renewable technologies in Liberia, has been assisted by the Technical Assistance Facility to accelerate the development of the Rural Energy Master Plan and to further prepare for funding concrete rural electrification projects.

In addition, the EU, through the technical assistance missions mobilised in the country, has also explored options for increasing the number of connections to existing and new electricity lines, including cross-border infrastructures, which complement the off-grid solutions.

This approach has been welcomed by the national stakeholders and international donors as it contributes to a coherent strategic approach eventually leading to visible improvements in the country.

Encouraging renewable energy in **Cape Verde** by creating an enabling environment and project preparation

Cape Verde has set the ambitious target of 50% renewable energy penetration by 2020, according to the national Renewable Energy Plan of 2011. A series of studies have tackled the least cost scenario in this respect, ranging from less than 50% up to 100% renewable energy penetration. The Technical Assistance Facility has been mobilised to assess their conclusions and recommend the most feasible option to bring affordable and sustainable energy services to many in the country, by making best use of indigenous renewable energy sources. In this context, concrete investment projects are recommended that allow the optimal development of the electricity system and installed renewable generation capacity including the option of a pumped storage and the option of dispatching the desalination water plant during hours of excess renewable electricity. Options for a drastic energy efficiency programme are considered as well.

Developing **Rwanda**'s renewable energy law

Rwanda's vision 2020 and its strategy for economic develop-

ment and poverty reduction place energy on top of the government's political agenda. Even though a strategic plan for the energy sector was developed in 2013, the country still lacks the appropriate legal and regulatory framework.
As a first step, the Technical Assistance Facility will support the Rwandese government with the drafting of the renewable energy act, as a prerequisite not only to clarify the role that public institutions and private sector stakeholders will play in the energy sector but also to provide more transparency to investors. By aligning the legal framework with the government's policy objectives, the Facility will help creating an environment where adequate resources will be available to stimulate investments in the energy sector.

Enhancing progress towards universal access to energy in **Rwanda**

With a rural electrification rate currently of 16% and an ambitious target of 70% countrywide connection rate by 2018, Rwanda has already started closing the gap towards the SE4All objective of universal access to energy. However, room for further improvements has been identified in order to translate the electrification master plan into a workable action plan and identify and prepare concrete energy projects.
In this sense, the EU technical assistance experts mobilised in the country have started to support the Rwandese government in preparing a rural electrification action plan and in assessing the potential for hydro-power generation on the Akanyaru river. Potential hydro-power development sites are being identified and the feasibility studies prepared by a team of experts on-site.

Enabling the development of a sustainable energy policy in **Eritrea**

Eritrea's energy sector is characterised by a massive dependence on traditional fuels and almost a total reliance on imported oil as a source of modern energy services. Therefore, increasing energy supply with indigenous energy resources is a priority on Eritrea's energy policy agenda.
The Facility has launched a background analysis, to be concluded with expert recommendations, to allow the government to develop and implement energy policies to overcome its energy dependence, and eventually provide the country with a comprehensive and sustainable energy strategy focused on internal resources to satisfy the national market.

Strengthening the Energy Information System of **Benin**

TAF has provided technical support to the Government of Benin in order to (i) update the Energy Information System, (ii) define a programme of capacity strengthening for the institutional component of the 11th EDF and (iii) provide support for the global and sectorial strategy. Following the review of the institutions involved in the energy information system, the TAF team has advised to reorganise the institutional framework in order to gain clarity and efficiency in the missions as a prerequisite for a capacity strengthening programme as well as an improved process for the Energy Information System.

Developing the SE4ALL Action Agenda and investment prospectus in **Burkina Faso**

TAF has provided technical support to the Government of Burkina Faso in order to prepare the SE4ALL Action Agenda and investment prospectus. To achieve this objective, three missions were carried out in the country by a team of two experts. During the three missions the TAF team has had several validation meetings with the inter-ministerial committee (CIESPA) in charge of SE4ALL. Coordination has also been performed with the parallel mission launched by the ECOWAS Centre for Energy Efficiency and Renewable Energy (ECREEE) for the transposition to Burkina Faso of the regional policies for renewable energy and energy policies adopted by ECOWAS.

Identifying and formulating an urban and peri-urban electricity access project in **Côte d'Ivoire** including economic and financial performance

Advancing the studies of the "Energos" project in Côte d'Ivoire TAF mission was synchronised with the European Investment Bank (EIB) team in charge of the assessment of the loan for the "Energos" urban grid rehabilitation and extension project. The purpose was to review the status of the various components of the "Energos" project (i) strengthening and extension of the electricity grid in Abidjan, Bouake and San Pedro including pre-financing of the connection costs, (ii) energy efficient street lighting and (iii) new dispatching centre. Considering, also that the public sector supports the investment cost, it has been decided to analyse the economic sustainability of the investment projects for the public sector. This will involve a full-fledged financial analysis of the positive impacts (serving of additional electricity demand that will create additional revenue to CIE, lower costs resulting from reduction of the grid losses) and their cost implications.

Assessing the Financial equilibrium of the Electricity Sector in **Côte d'Ivoire**

The electricity sector in Cote d'Ivoire has been operating mainly under a deficit, that has especially affected during the budget of 2010 and 2011 during the political crisis in the country. The TAF has been called to provide an analysis of this situation and come out with recommendations towards achieving financial equilibrium in the sector.

Drafting the implementation decrees associated to the new electricity code of Côte d'Ivoire

The TAF has launched the electricity regulatory support mission in order to assist the Government of Cote d'Ivoire to prepare the implementation decrees of the electricity code adopted in March 2014. The electricity code opens to many options that will be defined in the implementation decrees.

Identifying and formulating energy projects to be funded by the 11th EDF nexus with agriculture in **Ghana**

Since the main focus of the EU for the 11th EDF is on productive infrastructures investments in support to the agriculture sector, the objectives related to productive uses of energy is a central focus of the TAF in Ghana. Therefore, the TAF is mobilised to tailor the EDF actions to support an increased, efficient and sustainable use of energy in the agriculture sector. The TAF mission has resulted in the recommendation of 4 actions: (i) identification and formulation of sustainable energy solution for irrigation programme, (ii) identification and formulation of sustainable energy solution for agro processing, (iii) identification and formulation of sustainable energy solution for off grid rural electrification and (iv) definition and business case of blending financing schemes for sustainable energy and productive use projects.

Evaluating Energy sector institutional set up and cooperation perspectives in **Nigeria**

Nigeria's energy sector was totally unbundled creating more than 7 Generation companies and 11 Distribution companies. The purpose of this major and very complex reform is to improve more access to energy for the Nigeria people that have an electrification rate of 50% only. The rural areas of Nigeria are poorly electrified. Many studies have addressed the various issues linked to the energy sector policies, strategies, institutional, and financial set up for the multitude of projects and actions in the energy sector. The Technical Assistance Facility (TAF) has been mobilized to take stock of the energy sector overall energy value chain that involves natural gas and fuel supply, power generation, distribution and transmission including the energy infrastructure and its development perspectives. The TAF is working with the Donors, the public authorities at Federal level, the industry and the NGO's to determine the best way of boosting the energy access mainly to rural populations including through the use of renewable energy resources available in the country. The TAF effort should be leading in the medium term to the implementation of European Union support actions to rural electrification densification projects. The TAF is studying the possibilities for renewable projects such as mini-grid setup in the poor rural areas of Nigeria using for instance the solar and hydro energy. The TAF is also looking at the very large energy efficiency potential in Nigeria as a means of contributing to the establishment of a more efficient energy sector.

Evaluating the feasibility of funding rural electrification at regional level in the **OMVG member States** (Senegal, Gambia, Guinee Bissau and Guinee Conakry) through financial contribution of 11th EDF RIP (Regional Identification Program)

In the framework of the energy project of the OMVG organization (hydropower projects of Sambangalou in Senegal and Kaléta in Guinee, and the construction of 1,677 km of 225 kV lines and 15 posts 225/30 kV), It is proposed to connect 36 towns and villages to the grid. The villages and towns are spread in the four member countries of OMVG.The TAF has been mobilized to investigate the opportunity of funding of this project through discussion with the donors and IFIs involved in the project..

Stocktaking of the energy sector in **Togo**

The Government of Togo has set up long term objectives for its economic and social development. The energy sector development is one of the pillars of the strategic plan of the Country to achieve its development objectives. The electrification rate of Togo is still among the lowest in Sub-Saharan Africa, and there is urgency to improve this rate and connect the people to reach 75% by 2028, as part of the national objectives. The TAF has been mobilized to undertake a full understanding of the institutional, legal and regulatory framework of the energy sector and to investigate the renewable energy potential as well as the status of the distribution and transport grid and the regional set up of the power sector in order to identify projects that may be eligible for the EU support through the 11th EDF. The TAF is providing recommendations for the improvement

of the institutional, legal and regulatory framework to accompany the projects implementation.
Assessing the needs prior to mobilisation of Technical Assistance Facility (TAF) experts for providing support to

Helping **COMESA** to advance its policy through capacity building

Member States of the Common Market for Eastern and Southern Africa (COMESA) are in an urgent need of reforming their energy policies to foster energy efficiency and renewable energy investments. A needs assessment mission was carried out to identify how best support the COMESA Secretariat in its efforts to further develop a regional enabling environment for energy efficiency and renewable energy. The mission identified that priority support should be given for capacity building: i) a program for RAERESA and national energy regulators to speed and improve energy sector reform process in the COMESA region and ii) a training program for Secretariat and Member States on Energy Efficiency policies implementation. As a first step resulting from the mission, a five day training session for 25 delegates at COMESA in Lusaka was designed and organized and is about to take place in June 2015. It will be followed by a one day workshop at which ECOWAS ECREEE management will be invited to participate to discuss the possibility of an equivalent Energy Efficiency centre in Eastern & Southern Africa.

Lesotho electricity sector support

Lesotho is striving toward further upgrading the electricity supply of its inhabitants. Next to the Department of Energy and the Utility, there is the special Rural Electrification Unit and the electricity regulator to complete the actors in this field.
At this point, the utility company is struggling to keep afloat due to the low electricity prices and the backlog in investments in the grid, where at the same time the Rural Electrification unit is expanding the grid to new rural areas which inevitably makes the burden on the grid even harder.
In order to support Lesotho in achieving its goals, the TAF will launch a study to examine what and effective and sustainable electricity price policy that can will allow the utility to operate sustainably. There will also be support for the Rural Electrification Unit to apply off grid solutions wherever feasible.

Sustainable Energy has been selected as one of the two focal areas under the EU Multiannual Indicative Programme for **Viet Nam** 2014 – 2020.

An indicative amount of EUR 346 million out of the total EUR 400 million envelope has been allocated to support Sustainable Energy in Viet Nam. The main priorities included in the Programme refer to: increasing and securing access to energy, with particular focus on the poorest areas, promoting the use of renewable energy and improving energy efficiency, fostering private sector investments.
In this context, on 15 April 2015, an Inception workshop to launch the EU Support for Sustainable Energy in Viet Nam had been organized in Hanoi with the support of the Technical Assistance Facility (TAF) for the Sustainable Energy for All Initiative (SE4ALL) for Asia (including Central Asia), Neighbourhood, Latin America, Caribbean and Pacific. This workshop provided an overview on the state of play, challenges and as-

sistance needed for the implementation of key government programmes, policies and strategies in the energy sector, while representing also an excellent occasion for establishing contacts among the energy stakeholders. Several TAF support missions for the energy sector in Viet Nam are expected to take place in the following period.

3

Strengthening our partners

Reinforcing bilateral and multilateral dialogue and strengthening regional cooperation

EU Energy Initiative

Building alliances

The Africa-EU Energy Partnership (AEEP)

Reinforcing bilateral and multilateral dialogue and strengthening regional cooperation

Many countries across the globe have taken the courageous step of signing up to the ambitious objectives of the UN Secretary General's Sustainable Energy for All initiative, thereby underscoring their will to end energy poverty by promoting access to sustainable energy, energy efficiency and renewable energy. The challenges that many of these countries are willing to face should not be taken lightly. Meeting these objectives often requires important regulatory changes and fundamental sector reforms. Providing the framework conditions that allow for stable growth in a transparent regulatory environment will be a crucial factor for success. Without stability or such framework conditions, even the most basic of investments will risk drying up most of the donor funding while offering little guarantee of sustainability.

The EU will take on this challenge in more than 30 partner countries that have chosen energy as a focal sector for their bilateral cooperation. But it will help many more through its regional, continental and thematic instruments as the EU has allocated more than 3 billion Euro for future actions to this cause.

Tackling the energy conundrum will require a holistic approach. Technical assistance will be deployed helping to put in place the appropriate regulatory environment to unlock private investment but safeguard the interests of the authorities and consumers. Regulators, administrations and even parliaments will benefit from EU support. Large infrastructure Investments will be made cost-effective by blending donor funding with loans from various sources. Rural populations will be targeted through innovative instruments, such as ElectriFI, that can catalyze private investment by complementing traditional loans with an innovative grant-based approach. We will continue to help people in extremely fragile situations with grant based projects. Throughout this strategy we will also tackle cross-sectoral issues, such as fostering SME's, paying specific attention to the situation of women and the vulnerable.

Obviously, we will not be doing this alone. We will team up with our Member States and with all donors active inside each country. We will scale up best practices and seek complementarities wherever possible.

Moving into the regional markets, surpluses can and should be exchanged in order to complement excess in production or national deficits. Regional integration can foster cooperation between states' frameworks, helping the necessary investor confidence to be created. Greater confidence will create an environment for the necessary capital for interconnections to be raised. In order to be credible from a financial perspective, it is necessary that regional markets build up liquidity allowing for long term sustainability. The EU aims to promote sustainable growth by valuing and investing in natural capital, by supporting market opportunities for cleaner technologies and by promoting energy and resource efficiency in order to achieve low-carbon development. This in turn can create jobs and reduce poverty while mitigating climate change. At the same time we should stimulate use of ICT (Information and Communication Technologies) and reduce the unsustainable use of natural resources. Moreover, fostering regional cooperation in the field of energy can also help to create an environment that is conducive to peace and security.

EU Energy Initiative

Partnership Dialogue Facility (EUEI PDF)

The EU Energy Initiative – Partnership Dialogue Facility (EUEI PDF) is an instrument of the EU Energy Initiative (EUEI). Its objective is to support developing countries and regions in enhancing and implementing policies, market development approaches and in building the capacity needed to accelerate progress, including investment, in the energy sector. In close cooperation with other initiatives, it performs a range of services in the context of European energy development cooperation, including knowledge and best-practice exchange and dialogue, secretariat services, as well as energy advisory and market development project implementation.

The EUEI PDF is funded by the European Commission (EC) and six EU member states - Austria, Finland, Germany, Sweden, the Netherlands. The EUEI PDF coordinates and implements activities jointly with the EC and variety of partners from the EU, as well as regional partners in developing countries and international organisations, such as REN21 and IRENA.

The EUEI PDF focusses its efforts globally on low and middle income countries, with two of its sub programmes focussing specifically on Africa. Since 2005, the EUEI PDF has completed more than 80 activities in over 23 countries and 7 regions. Its current scope of work comprises strategic energy advisory and dialogue services, secretariat services to the Africa-EU Energy Partnership (AEEP), and the implementation of the Africa-EU Renewable Energy Cooperation Programme (RECP). More information on on-going and completed projects can be found at http://www.euei-pdf.org/.

Examples for projects and publications by EUEI PDF include:

Regional Project
Ecowas / ECREEE:
Development of a Regional Renewable Energy Policy

Regional Project
Supportive framework conditions for green mini-grids

Country Project
Senegal:
Development of a Tariff Structure for Renewable Energy

Thematic Study
Mini-Grid Policy Toolkit
Policy and Business Frameworks for Successful Mini-Grid Rollouts

Thematic Study
Building Energy Access Markets – A Value Chains Analysis of Key Energy Market Segments

Thematic Study
Low-Cost On-Grid Electrification
A Technology Handbook for Electrification Practitioners

Thematic Study
Biomass Energy Sector Planning Guide

Building alliances

Continental dialogue to catalyse cooperation and investment

Access to reliable, affordable and sustainable energy in a world of dwindling resources is one of the core challenges for the 21st century. The provision of affordable and reliable access to sustainable energy therefore remains one of the key topics for future economic, environmental and social development, in Africa and Europe.

Both the African and EU energy sectors undergo rapid change. With double-digit growth rates in many African countries, the energy sector presents both a challenge as well as an opportunity.

Intercontinental cooperation will yield benefits for all partners, including investment and improved energy service provision, technology transfer, as well as progress towards transforming energy systems for a more sustainable future.

In Lisbon, in December 2007, African and European Heads of State and their governments decided to launch the Africa-EU Energy Partnership (AEEP), one of the eight strategic partnerships within the Africa-EU Joint Strategy. Under this partnership of equals, the two continents share their know-how and resources, harmonise their complementary interests and coordinate their policies to meet the energy challenge hand in hand.

In 2010, the African Ministers responsible for Energy, and European Union Ministers responsible for Africa-EU energy relations set ambitious targets to be reached by 2020:

- to bring access to modern and sustainable energy services to at least an additional 100 million Africans,
- to double the capacity of cross-border electricity interconnections, thus increasing trade in electricity while ensuring adequate levels of generation capacity;
- to double the use of natural gas in Africa, as well as double African gas exports to Europe,
- and finally, to increase both energy efficiency and the use of renewable energy in Africa.

The status report that was presented four years later in Addis Ababa, Ethiopia detailed significant progress made by stakeholders on meeting these targets but still more is to be done and time has come to step up efforts.

This is also why the EU is reaching out beyond the African continent. For instance in the Pacific, we have built a coalition with New Zealand and the Asian Development Bank. This partnership will translate into concrete renewable, efficiency and access projects in the Pacific region in cooperation with the European Investment Bank and the Asian Development Bank.

Currently, the Pacific region meets around 80% of its energy needs from imported fossil fuels and providing clean and efficient modern energy is an important step on the Pacific's way to sustainable development. The Partnership helps to reduce the Pacific's dependence on fossil fuels that affect health, education and trade opportunities in the region.

In the coming years, we will earmark almost EUR 600m to building energy alliances across the globe with international organisations, private sector, national authorities and NGO's through the Global Public Goods and Challenges instrument. This instrument will address cross-cutting issues from sustainable energy to environment, climate change, food security and sustainable agriculture, from human development to migration and asylum.

The Africa-EU Energy Partnership
(AEEP)

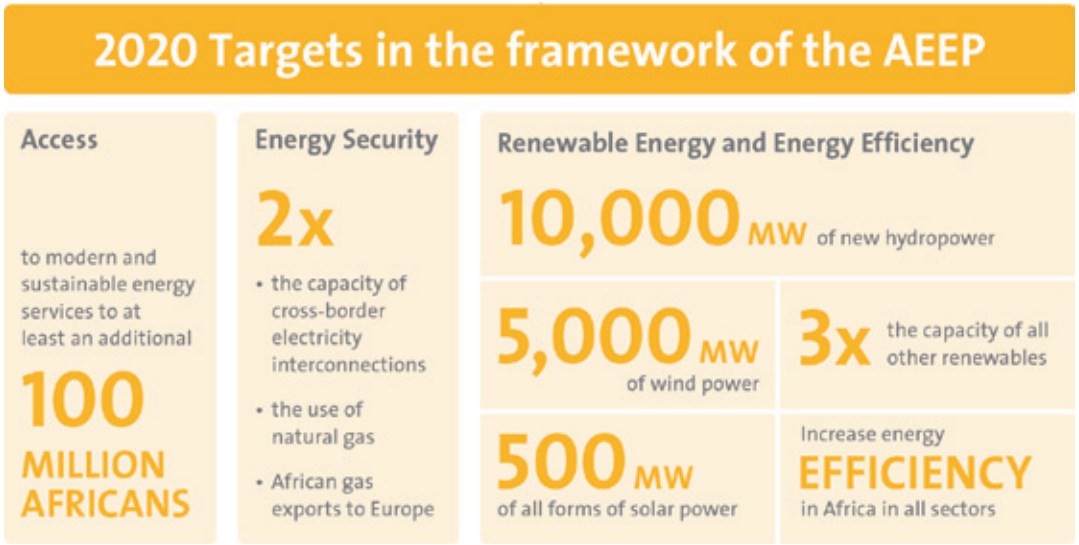
The Africa-EU Energy Partnership (AEEP) was launched in 2007 by African and European Heads of State and their governments as one of the eight strategic partnerships within the Joint Africa EU Strategy (JAES). Under this partnership the two continents share their know-how, harmonise their complementary interests and coordinate their policies towards the overall goal of achieving improved access to reliable, secure, affordable, cost-effective, climate-friendly and sustainable energy services for both continents.

In 2010, the African Ministers responsible for Energy, and European Union Ministers responsible for Africa-EU energy relations set ambitious targets to be reached by 2020:

The 2014 status report presented at the AEEP's second High Level Meeting in Ethiopia detailed significant progress made by stakeholders on achieving these targets. They are fully coherent with the SE4All's objectives; the AEEP itself complements and supports the SE4All-initiative.

The AEEP is widely perceived as the most active and successful of the eight JAES partnerships. In line with the reform of the JAES process, the AEEP is currently undergoing a review of setup and activities. A stronger thematic focus on energy efficiency, energy security, energy access and renewable energy is envisaged.

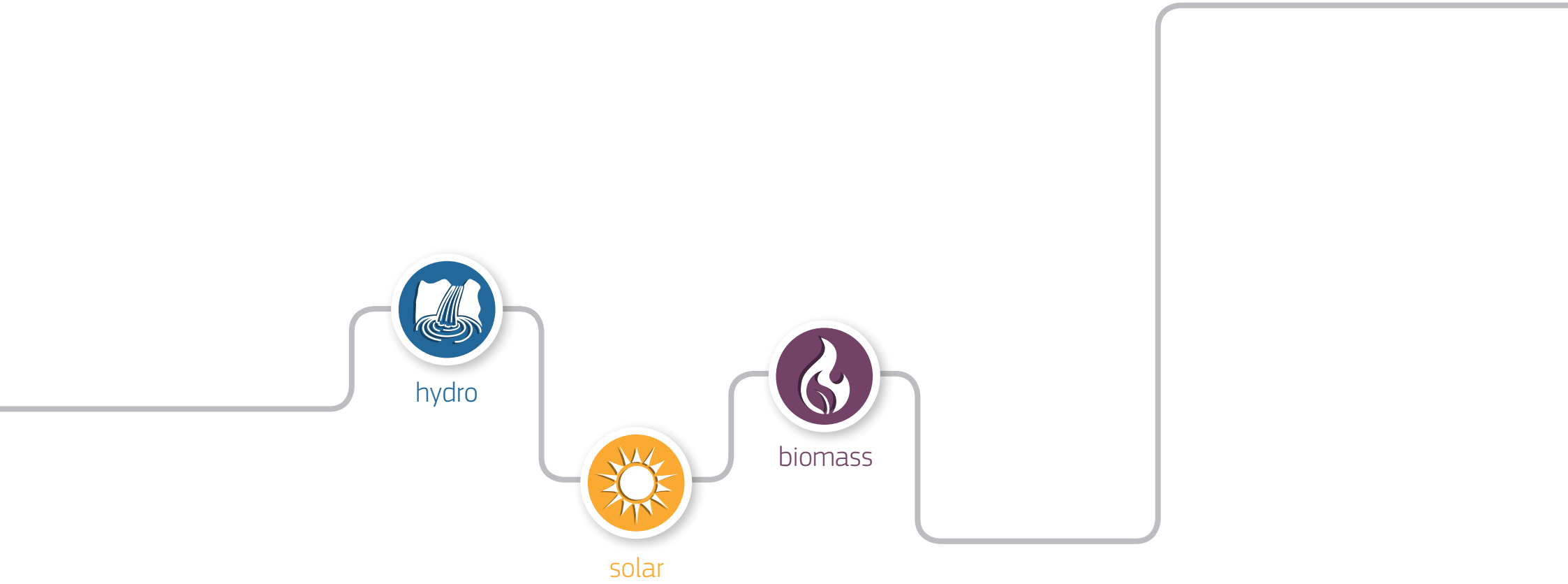
This will allow the AEEP to continue strengthening strategic energy dialogue between Africa and Europe and further enhance the role of the AEEP as an agenda setting forum and catalyst for joint action.



4

Empowering rural communities

Call for Proposals on Rural Electrification


hydro
solar
biomass

Empowering rural communities

Call for Proposals on Rural Electrification

> *Our collective efforts on energy access and energy poverty will help to ensure a fairer and more equitable world for all.*

Commissioner Neven Mimica

The factors that prevent the poorest from accessing sustainable energy services are multiple. They relate not only to the lack of physical connections but also to the affordability of electricity services as well as the quality and reliability of supply. Currently people in developing countries spend about EUR 28 billion annually for poor quality energy supply which causes high levels of pollution. Rural electrification remains one of the challenges that require a specific approach, with a shocking 84% of those without energy access living in the countryside.

This is why the EU has launched a Call for Proposals[1] addressing energy poverty in rural areas through scaling-up successful actions which have proven to have a significant impact on poverty reduction.

The specific objective of this call was to improve access to modern, affordable and sustainable energy services for the rural poor by focusing on renewable energy solutions as well as on energy efficiency measures. Special attention has been given to innovative characteristics of the project, the promotion of the productive use of energy, meaning actions and activities aiming at increasing access to energy services for local productive activities so as to promote economic growth, generate jobs and consequently increase the affordability of energy services.

The Call proved to be very successful, attracting 149 project proposals submitted by government, civil society and private sector organisations, for providing energy access to rural areas of African and Caribbean ACP countries[2] and requesting more than EUR 825 million in grant financing. More than 80 projects were evaluated to be of high quality and to this effect, the EU increased its initial budget allocation from EUR 55 million to a total of EUR 132,5 million.

As a result 22 projects were selected for EU funding, and present high poverty reduction impacts for almost 3 million direct beneficiaries, and several more indirectly benefiting through the electrification of social and productive infrastructures in 17 African countries.

All these actions correspond to a total budget of more than EUR 200 million (through co-financing support by applicants).

Key elements of these projects are the high level of involvement of the local beneficiaries, the scaling-up of activities which have proven successful and are coherent with the local and national or regional development plans and the high potential for productive use of the energy to be generated, thus promoting economic growth, creating jobs and increasing the affordability of energy services.

Moreover, a call for proposal targeting in particular fragile countries was launched in 2014 and resulted in the support of 9 successful projects which address the signficant challenges of energy access in rural areas. These 9 projects are featured in this booklet.

1. Call for Proposals ACP-EU Energy Facility II (ref. EuropeAid/133481/C/ACT/Multi).
2. Actions in the Pacific ACP countries were not subject of this Call as a separate initiative is followed for this region.

Hydro-electric Energy

for 20 isolated villages in the Ludewa district, Tanzania

Energy technology used in the project

Hydro-electric power plant with high and low voltage power lines

Total estimated cost of the project

EUR 7 568 677

EU co-financing

EUR 5 650 000

Direct beneficiaries

The rural electric grid will link 20 villages of Ludewa district, for a total of 53 380 beneficiaries who will have access to the hydropower electricity:

- 4 000 households;
- 43 primary and secondary schools (about 16 000 students);
- 1 Lugarawa hospital and 19 dispensaries;
- SMEs: 511 small shops/bars, 118 milling machines, 38 mechanical and carpentry workshops;
- Other: farmers and local authorities: 6 wards and 1 district

Context

Energy access in the Ludewa district is provided through a mini hydro-electric power plant built in 1979 to supply the Hospital of Lugarawa. The plant provides energy to 380 private users. There are plans to extend the TANESCO electrification grid from Makambako to Ludewa, with the aim to provide electricity to the future mining projects for extraction of coal and iron but the households and services of the rural villages targeted by this project are not planned to be connected. The national electric distribution network currently reaches the Luponde area, in the nearby Njombe district, supplying electricity to a tea farm and factory.

The specific objective of the project is to increase access to modern, affordable and sustainable hydro energy services, improving socio-economic and environmental conditions of the rural poor in 20 isolated villages in the Ludewa district. The economic sustainability will be ensured through the selling of energy surplus to TANESCO. The revenue will be used for the maintenance and the depreciation of the facility and to support social services and economic development.

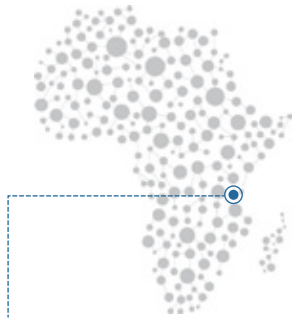
By the end of the project, the plant will be handed over to an Energy Users Entity, whose owners will be the Hospital of Lugarawa and the 20 served villages.

Main activities

- Construction of a hydropower plant and rehabilitation of existing plant for a total installed capacity of 1 700 kW;
- Building transmission lines: 137 km of medium voltage wires, 36 transformers and about 162 km of low voltage cables and 32 km of medium voltage transmission line from the power station site to the Luponde National Grid;
- Signature of the Standard Power Purchase Agreement (SPPA);
- Meetings with committees for the electrification of the villages and capacity building of the hydropower plant management team;
- Definition and implementation of an environmental management plan, reforestation of eroded areas and capacity building to local farmers;
- Market research, business planning and participatory selection of SMEs for the productive use of energy.

Expected results

- Annual production of 9 000 MWh/year with an associated energy cost of 0.08 €/kWh;
- Financially sustainable and well managed hydro-electric plant;
- Protected natural resources of Madope catchment basin and of installations area and sustainable practices for farming;
- Electric power for SMEs and social services.



Tanzania

Ludewa district, Njombe region

Fondazione ACRA-CCS

Nicola MORGANTI

Email: pvs@acraccs.org

Co-applicants: Studio Frosio; Njombe Development Office- NDO

Mwenga Hydro Rural Network Extension

into the Kihansi Basin

Energy technology used in the project
High and low voltage power lines

Total estimated cost of the project
EUR 5 812 507

EU co-financing
EUR 4 300 000

Direct beneficiaries
- 39 000 rural inhabitants
- 3 000 households

Context

Completely unelectrified regions, such as the Kihansi Basin (located in the South-Eastern highlands of Tanzania) suffer from a variety of problems, which make daily life for the local population difficult and unhealthy, with problems such as: no electricity supply in schools or governmental offices (for light, use of computers etc.), clinics (refrigeration of medicine, disinfection of tools etc.), no power for water supplies, to run engines in workshops, maize-mills, supply lamps, telephone chargers, electric stoves, refrigerators, televisions, radios, household appliances, etc.

The Mwenga Hydro Rural Network Extension into the Kihansi Basin aims to connect for the first time 17 currently unelectrified villages in this area to a permanent, renewable energy source (which is the nearby Mwenga hydro-power station) by building and operating additional 200 km of new power lines. It is expected that this extension exercise will result in approximately over 3 000 new rural connections within the first 20 months.

The project will use a state of the art, cell-phone based, pre-paid metering electricity vending system, which makes it easy and convenient for both the rural customer and the distributor to directly buy/sell electricity.

Main activities

- Develop full Environmental Impact Assesment (including baseline study);
- Launch and manage tendering process;
- Raise project awareness (project promotion) and compensate affected farmers;
- Construct high voltage and low voltage power lines, Installation of cell-phone based pre-paid metering system.

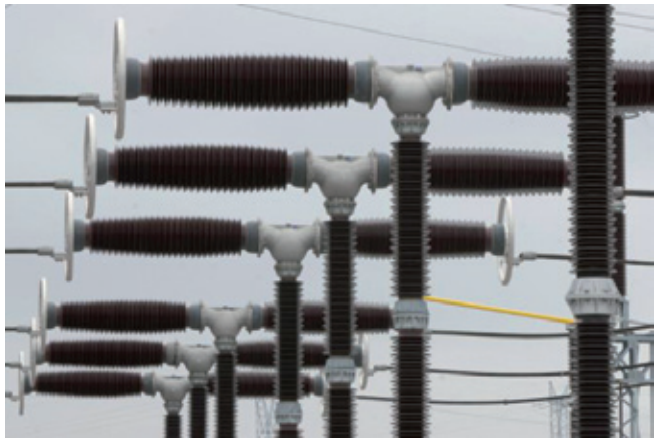
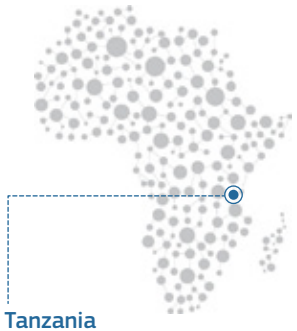


Photo for presentation purposes only

Expected results

- Increased access to electricity and improved living conditions for the population of the Kihansi Basin;
- 160 km of high voltage and 44 km of low voltage power-lines built;
- Approximately 3 000 new rural connections;
- Creation of jobs and livelihoods through the productive use of energy and development of SMEs.



Tanzania
Kihansi Basin, Mufindi in the Iringa region

Rift Valley Energy / Mwenga Hydro Ltd.

Franz KOTTULINSKY
Email: franz@riftvalley.com
Website: www.riftvalleyenergy.com

Electrification of 16 villages

in rural and peri-urban areas of 10 municipalities of the Far North Region of Cameroon

Energy technology used in the project

High and low voltage power lines

Total estimated cost of the project

EUR 7 087 413

EU co-financing

EUR 5 244 686

Direct beneficiaries

- 67 690 village residents
- 9 670 households

Context

Energy poverty in Cameroon is defined by a lack of access to reliable, efficient, sustainable and continuous energy services. Rural electrification is at an early stage, particularly in the far North region.

The project aims at electrifying 16 villages in the area of 10 municipalities in the Far North region which are located near the network coming from the Lagdo hydroelectric plant. Another goal is to ensure the sustainability of the network by encouraging households and public and private services to maintain and enhance the system.

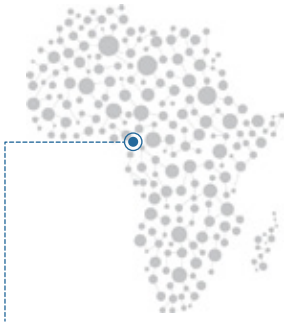
The project, which is part of the Plan d'Action National Energie pour la Réduction de la Pauvreté (PANERP), fits with the government's rural electrification priorities.

Main activities

- Informing, raising awareness and mobilising local players;
- Implementing the connection works in the targeted villages;
- Follow-up, monitoring and evaluation of the connection work;
- Implementation of operations prior to connection;
- Connection of households and public and private services to the electrical networks built;
- Strengthening of the technical capacities of the target groups in terms of creating and managing micro-projects and searching for financing.

Expected results

- 16 villages linked and connected;
- A significant share of households and public and private services in the villages use electrical energy;
- Households use electrical energy to improve their living standards (income, housing, safety, etc.);
- 91 km of high voltage and 40 km of low voltage power lines built.



Cameroon

Mogodé, Gamboura, Mokong, Guidbala, Kefta, Doulek, Balda, Kourdaya, Founanguédjé, Doubbel, Malam Petel, Mazangaï, Mangavé Wirdiwo, Yaéré Ouro Malloum, Biriwo and Boundéri

MIDIMA
Mission de Développement Intégré des Monts Mandara

Tchari BOULAMA
General Manager
Email:
tchariboulama@yahoo.fr

JIRO KANTO

Energy technology used in the project

Hydroelectric power plants with medium and low voltage power lines

Madagscar
Lac Alaotra region

Total estimated cost of the project

EUR 5 343 015

EU co-financing

EUR 4 007 261

Direct beneficiaries

- 177 000 people
- 29 500 households

Context

The JIRO KANTO project takes place in the Lac Alaotra region, the most important rice field in Madagascar.

Without a national grid, many households currently use generators for electricity, which are expensive and emit greenhouse gases.

Therefore, the project aims to provide low cost electricity from renewable energy sources (hydro power): green energy. The project also intends to increase the stakeholders' capacity to manage an isolated grid with stand-alone hydro-electricity production.

Main activities

- Conduct an environmental impact assessment;
- Prepare and sign the permit with the local authorities;
- Construct 2 hydro-electric power plants (1.5MW and 0.7MW) for a total capacity of 2.2 MW;
- Construct 70 km of medium voltage electricity grid and connect 12 communities with low voltage electricity grid;
- Negotiate and sign a power purchase agreement with the public utility.

Expected results

- In total there will be 29 500 households electrified by this project, increasing the electricity access rate to 8.5% (from the current 1.5%);
- The plants produce 13 771 000 kWh/year.

BETC Nanala

Paul RAKOTONDRALAMBO
Email:
betc_nanala07@yahoo.fr

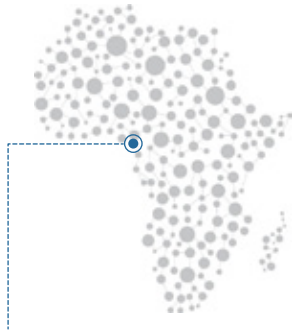
VER Plan: Decentralised Electricity Production and Utilisation of Rural Electrification for Agriculture and Rural Development in Cameroon

Energy technology used in the project
Hydroelectric power plant with mini grid power lines

Total estimated cost of the project
EUR 19 492 061

EU co-financing
EUR 7 992 061

Direct beneficiaries
69 963 inhabitants



Cameroon
Hauts-Plateaux, Mbam and Kim administrative regions

Context

The project involves the construction of two mini hydro-electric power plants of 1.17 and 0.49 MW each equipped with a network that will contribute to providing greater and better access to modern, affordable and sustainable energy services for rural populations.

A local Public-Private Partnership will be set up to provide additional financing. It will also be leveraged to put productive energy uses at the heart of the development activities. They will help increase the population's income and improve food security given that the department of Mbam and Kim is the leading manioc producer. The Rural Electrification Agency will benefit from strengthened capacity in terms of financing and project management tools and models.

Main activities

- Construction and start-up of the Ngoro (0.49 MW) and Batié (1.17 MW) mini hydroelectric power plants for a total installed capacity of 1.66 MW;
- Re-energise the Groupe de Travail Multisectoriel National (GTMN), which brings together the main actors of rural electrification;
- Implementation of the VER Plan in the regions in question, providing specific support and training for project sponsors;
- Feasibility studies for decentralised cost-effective production projects based on the mini hydro-electric power plants for submission for financing from the Fonds d'Équipement Intercommunal (FEICOM) and the Fonds d'Énergie Rural (FER).

Expected results

- Two mini power plants built and operational and provide energy to the national grid;
- The Groupe de Travail Multisectoriel National (GTMN) operating consistently;
- 20 projects studied in detail with business plans for their operation;
- The VER Plan implemented in the targeted areas and able to be duplicated throughout the country.

Agence d'Electrification Rurale

Email: oums252@yahoo.fr
Website: www.aer.cm
Co-applicants: Ministère de l'Agriculture et du Développement Rural (MINADER); FEICOM Innovation Energie Développement.

Dynamic Eco-Electrification
in North and Centre-North Burkina Faso

Energy technology used in the project
PV power plants with connection to the national electricity grid and individual PV kits

Total estimated cost of the project
EUR 12 320 930

EU co-financing
EUR 7 927 350

Direct beneficiaries
102 300 residents (16 500 households, schools, health centres, government offices, businesses) in 63 villages (33 villages around Kibilo and 30 villages around Pissila)

Context

The overall objective of the project is to implement low and medium voltage networks in the North and Centre-North regions of Burkina Faso.

2030 is approaching and the search for universal energy access methods requires a break with public investment trends that don't promote massive service distribution and only marginally account for renewable energy sources.

The project specifically aims at providing universal access (electricity service adapted to low purchasing power) for all inhabitants of two rural areas, namely 100 000 residents. It also works to increase access to renewable energy by installing photovoltaic generators producing 2.62 MW in order to significantly reduce the energy consumption of SONABEL's primary customer, ONEA, and dispense the energy saved to rural areas. The project wants to establish a cooperative implementation of electricity efficiency measures (streamlined use, tariffs reflective of costs, educational programmes), and puts the emphasis on the environmental value of the electrification model to implement other actions, such as the managed mobilisation of biomass and the creation of two eco-zones.

Main activities

- Creation of two electrified eco-zones, covering 830 km², 16 500 businesses and households, and 100 000 inhabitants;
- Technical, financial and tariff analysis of the service model and detailed Pre-Project/Call for Tender file for the implementation of medium voltage and low voltage networks, of 12 500 business connections, of 7 PV plants and of 4 000 PV kits for a total capacity of 2 620 kW;
- Initial operation of power plants, networks and kits through a collective interest cooperative management approach, with an emphasis on local players;
- Participatory study of the environmental action plan, with education and leadership of the first actions resulting from the group decisions.

Expected results

- 16 500 electricity delivery points (direct access for 102 300 residents);
- Deployment of 7 PV plants totalling 2 500 kW and 4 000 PV kits (120 kW) with production of 4 286 MWh/year of PV, which 95% at a cost lower than network energy, that is, 21.6 kWh/month/household;
- Social control of heating wood consumption and design of an environmental action plan with local players.

Burkina Faso
The provinces of Yatenga, Zondoma (North region) and Sanmatenga (Centre-North region)

SINCO
Société d'Infrastructures Collectives

11 BP 452 CMS Ouagadougou 11, Burkina Faso,
Rue 1360 quartier Zogona

Yacouba SANOU
Tel.: +22 650 36 14 91
+22 676 61 32 94
+22 670 25 37 27
Email: yacouba_sanou@yahoo.fr

Scaling–up Rural Electrification

Using Innovative Solar Photovoltaic Distribution Models

Energy technology used in the project

PV power plants with battery banks and PV kits

Total estimated cost of the project

EUR 5 737 539

EU co-financing

EUR 4 286 249

Direct beneficiaries

72 100 direct beneficiaries targeting the Ugandan rural population consisting of households, social institutions and small businesses in Kasese district (15,000 households in rural communities, 40 rural youth and women (local entrepreneurs), 20 CBOs (Community Based Organisations), 100 small businesses, 50 rural social institutions (health clinic and schools), the Ministry of Energy and Mineral Development (MEMD), the Rural Electrification Agency (REA) and solar PV suppliers in Kasese and other parts of Uganda)

Context

This project seeks to address the problem of lack of access to electricity for lighting and other basic energy needs, which has impeded development and improvement of livelihoods in the Kasese district.

The rural population in Kasese, just like in the rest of Uganda, is not serviced by the national electricity grid. As an alternative, kerosene is the most used fuel for lighting but it is associated with indoor air pollution, fire hazards and poverty. Additionally, poor access to energy has a direct impact on the number and quality of services that health centres, schools, and businesses offer, subsequently affecting the quality of the population's livelihood.

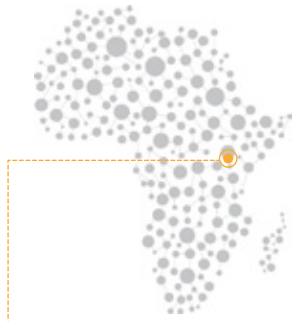
Therefore the overall objective of the project is that, "by 2025, rural livelihoods are improved and greenhouse gas emissions are reduced through widespread access to clean and renewable sources of energy in Uganda." Through this initiative, rural communities in Kasese are expected to adopt solar technology as a source of energy for domestic use, social institutional use (schools and health clinics) and for productive use. To ensure its sustainability, the project will directly involve the local communities in activities in order to create local ownership, build their technical capacity to install and maintain solar PV systems and impart business skills to run the energy kiosks' profitably.

Main activities

- Training in the installation, maintenance and distribution of Solar Home Systems (SHS);
- Training of Community Based Organisations (CBOs) and entrepreneurs in business development;
- Conducting publicity campaigns to promote solar PV technology;
- Installation of solar PV systems in 50 social institutions and 20 energy kiosks for a total capacity of 560 kW;
- Collection and dissemination of lessons learnt.

Expected results

- CBOs are trained to install and manage SHS;
- Women and youth entrepreneurs are trained to manage solar PV kiosks;
- Demand for solar PV systems is stimulated;
- Access to solar PV power is expanded to new communities;
- Public and private actors replicate this innovative business model to promote the widespread use of renewable energy across Uganda;
- The plants produce 993 165 kWh/year.



Uganda

Kasese district.

WWF

World Wildlife Fund

Dr. Timothy GEER

Email: tgeer@wwfint.org

Website: www.panda.org

Co-applicants: Enterprise Uganda and Kasese district Local Government

Teko Wa

Access to Energy Services in Rural and Peri-Urban Areas of Northern Uganda

Energy technology used in the project

Mini PV units and high efficiency stoves

Total estimated cost of the project

EUR 5 413 491

EU co-financing

EUR 4 060 118

Direct beneficiaries

50 000 households, meaning 250 000 people; 2 400 school children; 4 800 woodlot entrepreneurs;
180 charcoal burners;
60 solar entrepreneurs and technicians; 80 private tree-nursery operators;
540 CERP's and women artisans; 18 cultural leaders;
12 local environment committees (9 people/ committee); 48 church-affiliations; 2 prisons (500 prisoners)

Context

The project seeks to respond to the unsustainable overreliance and use of trees for energy needs in Northern Uganda by providing increased access and use of solar power technology for households and schools. The project will also planting trees and promoting energy efficient cookstoves.

The overall objective is to contribute to sustainable energy security in rural communities in northern Uganda for social and economic development. It aims to do so by increased access and use of solar power technology for households and school, introducing an alternative energy source which has become increasingly accessible and affordable with technological developments.

It will also try to increase sustainable production and use of energy-efficient cooking technologies among rural communities in order to reduce demand for bio-energy through energy-efficient stoves. More efficient stoves will require less bio-energy input to receive the same result, putting less strain on natural resources, reducing carbon emissions and reducing socio-economic burdens of firewood collection.

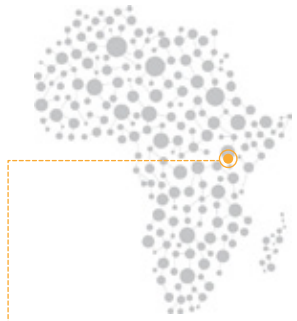
Finally, the project intends to increase reforestation and sustainable management of bioenergy resources to increase the supply. As trees are Northern Uganda's most vital energy source, they will be planted alongside fruit trees for fuel and timber, which both improve nutrition at a household level and provide income through the sale of surplus.

Main activities

- Distribute PV solar units to households and public facilities;
- Provide training in the distribution, construction and repair of energy efficient stoves and PV solar units;
- Awareness-raising and capacity building activities aimed at the use of energy efficient stoves and solar lighting technology, environmental management, and tree planting;
- Promote energy efficient cookstoves and strengthen local environment committees so that they can plant trees and protect them;
- Establish woodlots and private tree nurseries.

Expected results

- Increased access to and use of PV solar energy. Distribution and maintenance points are locally available. PV solar technology to electrify households and schools will increase the energy available for low-income rural households to use and it will replace inefficient, unclean and environmentally harmful alternatives such as paraffin candles;
- Increased sustainable production and use of energy efficient cooking technologies among rural communities, as a result of communities being made aware of the benefits and methods of using energy efficient stoves. Local capacity to produce these stoves will be built through training community women in making several models of energy efficient stoves. Combined with increased access to energy resources, more efficient use of the existing resources will improve energy security;
- Increased reforestation of 2 555 Ha of land and sustainable management of bio-energy resources.



Uganda

Kitgum, Lamwo, Agago and Pader districts

Church of Sweden

Marc SIMBIZI
Programme Officer
Email: marc.simbizi@svenskakyrkan.se
Website: www.svenskakyrkan.se
Co-applicants: Lutheran World Federation

Micro Power Economy

Tanzania Roll out

Energy technology used in the project

Solar PV-diesel-battery hybrid power stations in mini-grids

Total estimated cost of the project

EUR 16 049 432

EU co-financing

EUR 7 398 665

Direct beneficiaries

16 villages with a total of more than 81 500 people

Context

In Tanzania, the project implements the award-winning business model of "Micro Power Economy" on a large scale. Developed by INENSUS, it has proven successful in West Africa. Through training, end customers learn how to use electricity efficiently.

Indeed, INENSUS and its partners provide reliable, affordable and sustainable electricity not only for basic services but also to generate local economic development. The project relies on two main pillars: advanced technological expertise and a proven business and risk management model.

With the support of the EU ACP Energy Facility, the "Micro Power Economy" shall become a major power model in rural Tanzania and beyond.

The Micro Power Economy consists of three core elements:

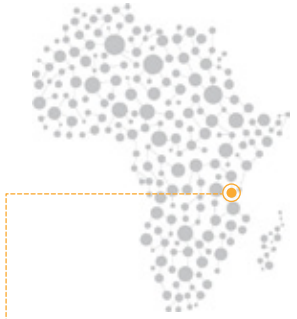
- A "constellation of stakeholders" fostering growth through concerted aims and actions;
- A tariff and billing model, offering the reliability of planning for all stakeholders through the "electricity block trading system";
- Micro Power Smart Meters which stabilise the grid and facilitate smooth pre-paid electricity block trading. With the modular and extendable power generation concept used here, the end users will have access to almost unlimited single and three-phase power for businesses to spur. This last element, essential to this project, will be supported by several local partners who have ample experience in supporting local private sector.

Main activities

- JV company creation;
- Electrification of households, businesses, public services and lighting;
- Supporting the development of new businesses, particularly in agriculture;
- Transformation of the project into a sustainable and profitable Micro Utility;
- Monitoring, evaluation and communication;
- Installation of a 2.12 MW solar PV plant.

Expected results

- More than 81 500 people living in rural Tanzania will get access to reliable electricity from mainly renewable sources in mini-grids;
- The plant produces 3 069 000 kWh per year of PV energy with an expected selling price of 0.62€/kWh.



Tanzania

The Mwanza, Tabora and Shinyanga regions

INENSUS GmbH

Nico PETERSCHMIDT
Dept-Ing
Email: np@inensus.com
Co-applicants: St. Augustine University of Tanzania, TerraProjects e.U., Excel Hort Consult Ltd, Sustainable Business Institute (SBI) e.V

Pre-paid Energy

Rent-to-Own Solar Home Systems

Energy technology used in the project
Solar Home Systems (SHS)

Total estimated cost of the project
EUR 22 184 247

EU co-financing
EUR 6 000 000

Direct beneficiaries
645 000 people

Context

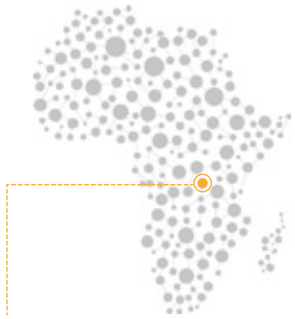
The main problem addressed by this project is the limited or complete lack of access to electricity of rural households in Rwanda. The project seeks to provide a clean and sustainable energy supply alternative, which is affordable and supports economic activity. Mobisol's SHS are microfinanced, based on a 36-month payment scheme and a 3-year warranty. Mobisol's clean solar energy increases the standard of living by leapfrogging the non-existent electricity grid and replacing the usage of fossil fuels. Productive use kits, mobile phone and lantern charging stations, are unique ready-to-go business bundles used by customers. The generated income from the charging business enables these "entrepreneurs" to pay off the monthly rates and also provides additional income.

Main activities

- Set up of a sales and distribution infrastructure to serve customers' demand;
- Incorporation of a rent-to-own finance scheme and inclusion of mobile money;
- Development of a technical service infrastructure for after-sale service;
- Distribution of business kits to support economic activities
- Set-up of a training infrastructure (Mobisol Academy) to train local sales and technical staff;
- Installation of a total of 4.9 MW capacity of SHS in households and 3 MW in schools.

Expected results

- The replacement of fossil fuels with a renewable resource, solar energy, leading to an immediate reduction in CO_2;
- The Mobisol SHS combining mobile "pay as you use" feature provides the guarantee that systems are effectively paid for and enables the rural poor to own a PV system;
- Profits are accumulated either by enabling longer working hours or by attracting more customers on the account of brighter electric light. The social benefits of electricity are: households without kerosene lamps have less indoor air pollution, children can study after dark, and even access to information increases;
- Mobisol targets the roots of gender inequality in general by addressing the "gender-energy-poverty" nexus. Access to clean and efficient home energy sources can improve the livelihoods of girls and women.



Rwanda
Eastern Province

EWSA
Energy Water and Sanitation Authority

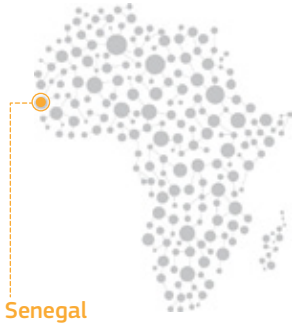
Ntare KARITANYI
Email: nkaritanyi@ewsa.rw
Website: www.ewsa.rw
Co-applicant: Mobisol GmbH – CEO Thomas Gottschalk

DPER-South East Senegal

Sustainable Development and Peace for Renewable Energies

Energy technology used in the project

PV power plants connected to mini grids and high quality batteries



Senegal
Regions of Ziguinchor, Kolda and Tambacounda

Total estimated cost of the project

EUR 8 565 104

EU co-financing

EUR 6 423 828

Direct beneficiaries

90 000 beneficiaries in 20 villages, including:

- 3 000 households
- 150 micro entrepreneurs
- 100 community services
- 365 rural consultancy organisations

Context

The three target regions, Ziguinchor, Kolda and Tambacounda, have the lowest income and the lowest electrification rate in Senegal and will not be connected to the grid within the next 20 years. Without access to electricity there will be no economic development in agriculture or skilled crafts and trades.

The project's specific objectives are to scale up rural electrification projects far from the public grid, encourage the creation of rural micro enterprises with strong involvement of women and young people, and to train strong leadership personalities in the disadvantaged rural areas in the promotion of renewable energies.

Main activities

- Installation of 40 PV power plants with a capacity of 20 kW each along with 2 to 3 km of mini grid per village and grid connection of households and micro enterprises;
- Organisation of vocational education for women and young entrepreneurs in renewable energy professions;
- Organisation of technical after-sales service and financial management of the project;
- Organisation of a contest "Meilleur Affaire" (Best Business) for the best three business ideas and their implementation thanks to the availability of electricity.

Expected results

- More than 3 000 unelectrified households get grid connection for their basic needs for lighting and communication. More than 150 micro enterprises created by women and young entrepreneurs in the villages;
- More than 100 electrified community services (schools, health centres, maternity hospitals, churches, mosques, street lighting, women's community centre);
- More than 80 technicians trained;
- Economic growth initiated on a sustainable basis with long term positive effects such as food conservation and security;
- 18 780 tons of CO_2 savings over 20 years, respectively 939 tons per year;
- The plants produce a combined output of 1 474 400 kWh/year at a price of 0.2 €/kWh without the mini grid and 0.4 €/kWh with the mini grids.

SOLAR23 GmbH

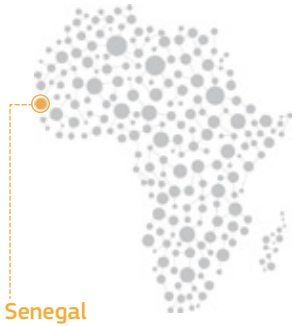
Tobias MERKEL
Email: tobias.merkel@solar23.com
Website: www.solar23.com
Co-applicant: énergie R; ECOWAS Centre for Renewable Energies and Energy Efficiency (ECREE); Association Nationale des Conseillers Ruraux (ANCR)

Sustainable Electricity Service Access

for the Development Pole villages of Matam, Kanel, Ranerou, Goudiry and Bakel

Energy technology used in the project

Off-grid mini PV power plants with batteries and low voltage mini grids



Senegal

Departments of Matam, Kanel, Ranerou, Goudiry and Bakel

Total estimated cost of the project

EUR 15 995 184

EU co-financing

EUR 7 997 592

Direct beneficiaries

50 000 people in villages

Context

The rural populations targeted by the project live in remote villages located over 10 km from the grid. They have little chance of getting access to electricity given the high investment costs associated to connecting them to the network. In addition, the low rate of access of rural populations to electricity and the energy crisis caused by soaring oil prices over the past years have not been conducive to the eradication of poverty in these areas where the most vulnerable people of society live.

The project aims to ensure access to sustainable electrical service for at least 50 000 people living in very isolated development pole villages, to improve the operation of basic social services, and to develop access to electricity for productive uses.

Main activities

- Engineering study and investments in electrification infrastructure;
- Selection of ERIL operators (Electrification Rurale d'Initiative Locale) for the supply and management of electricity services to customers, based on calls for tender;
- Creation of a framework for dialogue and exchange to facilitate implementation and strengthen the capacities of those involved;
- Installation of PV power plants of a total capacity of 1 050 kW.

Expected results

- At least 70 villages in the target zone electrified via mini solar PV power plants connected to low voltage grids;
- Village management committees created in each target village to assist with project implementation;
- The infrastructure of all the targeted villages' basic social services is electrified;
- The plants produce a combined output of 6 898 500 kWh/year at an estimated cost of 0.29 €/kWh.

ASER
Agence Sénégalaise d'Electrification Rurale

Antou GUEYE SAMBA
Email: agsamba@aser.sn
Website: www.aser.sn

AGENCE SENEGALAISE D'ELECTRIFICATION RURALE

Solar PV Mini Grids

for the Rural Towns of Areza and Maidma

Energy technology used in the project

Mini-grid solar PV systems

Total estimated cost of the project

EUR 11 762 778

EU co-financing

EUR 8 000 000

Direct beneficiaries

34 000 people, residing in the two rural towns and surrounding villages:

- Over 500 SMEs
- 80 establishments for community services, including CBO, NGO and administration offices; social services, including 15 schools and 2 kindergartens, 2 community hospitals, 5 health stations and 15 pumps for domestic applications and 11 pumps for irrigation

Context

Eritrea is one of the least developed ACP countries.

Despite being endowed with a great potential in renewable energy, rural communities in Eritrea have poor access to energy, both for subsistence and productive purposes, as the energy sector is characterised by massive dependence on traditional biomass and imported oil for modern energy supply. Therefore, in line with the newly developed priorities set in the National Development Plan, the Ministry of Energy and Mines has prepared this project as a "stepping stone" within the national energy reform plan towards environmentally sustainable and financially affordable and viable energy coverage of the country.

Areza and Maidma are rural towns which both have an exceptional need for electricity supply and with the greatest potential in solar and wind energy. The area is far from the grid and the chance for connection to the grid in the near future is remote. Therefore, this solar PV mini-grid project was designed.

The project aims at improving the livelihood of rural towns and villages by providing clean, affordable and sustainable supply of solar powered electricity.

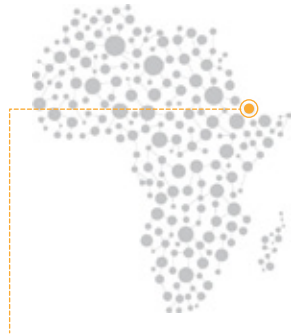
The specific objective of the project is to provide electricity for about 34 000 people living in the rural towns of Areza and Maidma and to the villages nearby and to more than 500 SMEs; 80 establishments of community services, Community Based Organisations (CBO), Non Governmental Organisations (NGO) and administration offices; social services: 17 educational, 7 health and 15 water supply facilities serving the population of the sub-zone.

Main activities

- Installation of solar PVs for a total capacity of 2.7MW;
- Capacity building;
- Modernising social services;
- Monitoring and evaluation.

Expected results

- Local capacity built in the installation of solar PV mini-grids, its operation and maintenance;
- Sustainable power provided to 34 000 people through solar mini-grid systems installed and commissioned;
- ncome of 5 000 households increased through jobs generated by SMEs;
- Enhanced food production and availability in the target villages;
- Improved delivery of educational, health, information and domestic water services to people in the project area;
- Development of a model for further sustainable rural electrification;
- The plants produce a combined output of 3.5 GWh/year.



Eritrea

Debub Administrative region (50 km west of Mendefera in Sub-Zoba Areza)

Ministry of Energy and Mines

Tesfai GHEBREHIWET

Email: gtesfai@gmail.com

Website: www.moem.gov.er

Tel.: +29 11 12 15 41

THE STATE OF ERITREA
Ministry of Energy and Mines

Scaling up Access to Modern Electricity Services

on a Regional Scale in Rural Sub-Saharan Africa by Means of a Fee for Service Business Model

Energy technology used in the project

Solar Home Systems (SHS) and PV-diesel hybrid plants with mini grids

Total estimated cost of the project

EUR 10 666 666

EU co-financing

EUR 8 000 000

Direct beneficiaries

74 000 people will directly and indirectly benefit from the project (households, SMEs, community institutions, rural communities) and 76 new local staff members will be structurally employed and trained in local FRES companies

Context

Foundation Rural Energy Services (FRES) provides rural communities in Mali, Uganda, Guinea-Bissau and Cameroon with affordable access to electricity, key rural infrastructure and employment, which are the building blocks of development. FRES establishes local utility companies that provide high-quality/high-capacity Solar Home Systems (SHS) and mini-grids to rural populations via a financially sustainable fee-for-service business model.

FRES aims to stimulate private sector development, inclusive economic growth and accelerated improvements in health and education, i.e. new enterprises start-up/expand, improved access to products/services, health centers refrigerate vaccines, children study at night. By using solar energy, FRES directly supports the achievement of five of the Millennium Development Goals, namely those related to poverty, education, gender, health and the environment.

The project will provide:

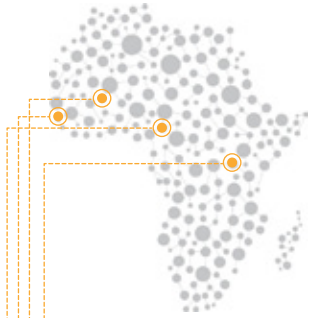
- 8 200 households and Small and Medium Enterprises (SMEs) with access to electricity via SHS in Uganda, Mali, Guinea-Bissau and Cameroon;
- 1 100 households and SMEs with access to electricity via hybrid (solar/diesel) mini-grids in Mali and Guinea-Bissau;
- One new commercial utility company in rural Cameroon;
- A total of 1.4 MW new solar PV installed capacity;
- 76 new local staff members employed and trained by FRES companies (on top of existing staff);
- Two regional capacity building workshops to train rural electrification agencies of Cameroon, Mali, Uganda and Guinea-Bissau.

Main activities

- Scaling-up rural electricity access with SHS through established FRES companies in rural Mali, Uganda and Guinea-Bissau, via a sustainable and revolving fee-for-service model;
- Replicating FRES successful business model to establish a new local company in Cameroon and provide electricity access to rural households and SMEs via SHS;
- Installing and operating new hybrid (solar/diesel) mini-grid networks in Mali to provide electricity to new households and SMEs, with additional solar capacity installed at an existing hybrid mini-grid to support growth in demand and productive use activities for existing customers;
- Refurbishing one disused mini-grid in Guinea-Bissau by installing a new solar power plant and connecting new clients;
- Facilitating bi-annual capacity building workshops for rural electrification agencies in Cameroon, Mali, Uganda and Guinea-Bissau;
- Installation of the plants for a total capacity of 1 400 kW.

Expected results

- Increased access to electricity in the rural communities of targeted countries;
- Improved living conditions and life opportunities;
- Improved private sector development and economic opportunities;
- Creation of livelihoods through the productive use of energy;
- Enhanced sustainable and inclusive economic growth;
- Promotion of gender equality and structural employment;
- Improved capacity and knowledge sharing within national government agencies responsible for rural electrification programmes;
- Reduced use of fossil fuels for lighting and communication and in the associated greenhouse gas emissions;
- The plants produce a total of 1 450 444 kWh/year at a cost of 0.47 €/kWh.



Uganda The districts of Kabale, Lyantonde, Rukungiri and Kamwenge in Western-Uganda.
Mali The regions of Segou and Sikasso
Guinea-Bissau The villages surrounding Gabú town
Cameroon The North-West region and part of West region

FRES
Foundation Rural Energy Services

Caroline NIJLAND
Director Business Development
Email: caroline.nijland@fres.nl
Website: www.fres.nl
Co-applicants: La Société de Services Décentralisés (SSD) Yéelen Kura (Mali); FRES Uganda Ltd (Uganda); SOCIETE DES SERVICES DECENTRALISES FRES GUINE-BISSAU.SA, (Guinea-Bissau); Centre for Appropriate Technology (Cameroon)

PROGRES-Lait: West African Regional Programme Extending Opportunities to Enhance the Milk Value Chain by providing Access to Sustainable Energy Services

Energy technology used in the project

Solar PVs with mini grids and mini solar PV

Total estimated cost of the project

EUR 6 946 314

EU co-financing

EUR 5 209 735

Direct beneficiaries

Each village mini-platform will provide storage for 20 producers on average, that is 30 000 people

Context

PROGRES-Lait is a regional programme giving access to productive energy services related to the milk value chain.

Firstly, it consists in providing dairy farmers in villages with mini-grids and energy platforms to allow milk conservation, milling, welding and lighting in four dairy production centers of Senegal and Mauritania. A community-based Public Private Partnership, acting as a market development instrument, will then be put in place to professionalise the system of collection, conservation and commercialisation of milk.

The project aims to develop the rural economy of Senegal and Mauritania by ensuring access to energy in the field of milk conservation.

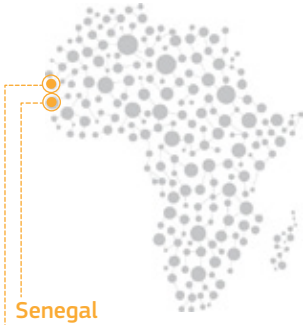
Specifically, it intends to improve access to stable and sustainable energy, promote entrepreneurship, notably of women, to increase their economic power through access to solar platforms used for milk conservation, implement effective organisational models dedicated to small producers and finally to implement an innovative partnership to provide the momentum for the development of an autonomous milk collection and commercialisation market.

Main activities

- Identification of possible participants in the action;
- Strengthening of their organisational, technical, financial and managerial capacities;
- Administering procurement procedures, delegating the management of the platforms to a local operator and creating a business model that guarantees profit generation;
- Securing the milk market for small producers through the signing of agreements;
- Management, investment and knowledge dissemination: encourage the programme international visibility in order to raise bilateral and regional organisations interest and make of PROGRES-Lait a poverty alleviation, energy access and rural economic development programme for vulnerable communities;
- Implement PROGRES-Lait systematically to be able to duplicate it, taking into account the specificities of each local and national environment. Duplication will be based on the organisation of communities of actors who share the same methodology;
- Installation of 120 solar PVs for a combined capacity of 168 kW.

Expected results

- Installation of 100 entrepreneurial mini solar platforms to supply over 2 000 small producers. The mini-platforms consist of refrigerators with a capacity of 200 to 400 litres and 400 W of power. The platforms will also allow the population to charge their mobile phones;
- Installation of 20 solar dairies for storage and pasteurisation. They will supply large processing companies and connect 1 000 households;
- The platforms produce a total of 411 720 kWh/year;
- Implementation of a suitable financing mechanism to ensure continuation of the programme, valuing the contribution of beneficiaries to the overall cost of the platform;
- Small producers and basic community organisations are professionalised;
- The awareness of all stakeholders is improved thanks to the implementation of a communication strategy.



Senegal

The area of Kolda in the South-East and the Ferlo region (in the north of the country, in the southern Senegal River basin)

Mauritania

The areas of Trarza (Senegal River valley) and Hodh El-Charghi (South-East)

ENDA Energie
Senegal

Secou SARR
Email:
secousarr@endatiers.org
Website:
www.endaenergie.org

Co-applicants: Senegalese Rural Electrification Agency (ASER) (Senegal); Ministry of Rural Development (Mauritania); ECODEV – NGO (Mauritania); ENEGIE 2050 - Association (France)

SE4RC:
Sustainable Energy 4 Rural Communities

Energy technology used in the project
Solar PV mini-grid and stand-alone systems

Total estimated cost of the project
EUR 7 133 121

EU co-financing
EUR 5 349 841

Direct beneficiaries
30 000 people, including: 4 community energy services companies and 16 kiosk operators, 4 400 small scale farmers, 8 900 households, 1 clinic, 2 schools and 9 small businesses.

Context

Poverty levels in the target areas are high, and access to basic education and health services is poor. Community energy needs are not met by the current rural electrification modus operandi. A lack of clear policy and regulatory framework hinders private investment.

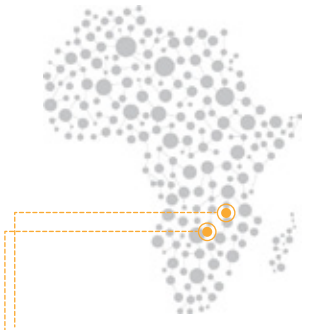
SE4RC will introduce a model of public-private investment for rural electrification, anchoring community-managed off-grid energy service delivery to underlying agriculture and socio-economic development in isolated rural communities. The project will contribute to the reaching of the SE4ALL objectives by improving access to modern energy services, which contributes to enhancing the well-being (economic and social) of rural men and women in Malawi and Zimbabwe. Inclusive business will create growing demand for the energy for productive use, and ensure the schemes' viability. By advocating for reforms in the policy and regulatory frameworks and engaging key stakeholders in a market-driven approach, SE4RC will create a more enabling environment for public and private participation in rural electrification.

Main activities

- Community Based Approaches and energy planning;
- Technical designs of grids, energy kiosks and irrigation schemes;
- Procurement and installation;
- Training and certification of Community Energy Service Companies;
- Design and building of 16 energy kiosks and sustainable battery distribution model for a total capacity of 244 kW;
- Technical training to entrepreneurs;
- Marketing;
- Link farmers to REA's rural end use fund;
- Facilitate effective rural off-grid tariff calculator and power purchase agreements between producers and users; agro-production, agro-market and energy assessments; PPP framework for agro-processing;
- Business training and market systems development training for smallholders and entrepreneurs.

Expected results

- Improved living conditions and opportunities by installing solar mini grids to power irrigation facilities, households, small businesses, clinics and schools;
- Enhanced sustainable inclusive economic growth by improving access to water for irrigation, boosting agriculture when combined with Participatory Market Systems Development;
- Increased employment opportunities by creating energy kiosks and Community Energy Service Companies;
- The systems produce a total of 402 600 kWh/year.



Malawi
Nsanje and Chikwawa districts
Zimbabwe
Gwanda district

Practical Action

Simon TRACE
Email: Simon.Trace@practicalaction.org.uk
Website: www.practicalaction.org

POWER KIOSK: Scaling-Up Rural Electrification in Kenya, Ethiopia and Madagascar

Energy technology used in the project

solar energy

Total estimated cost of the project

EUR 9 447 914

EU co-financing

EUR 5 471 783

Direct beneficiaries

Rural communities - special focus on schoolchildren, women, farmers/stock farmers & SMEs

Context

Despite the increasing urbanization, Ethiopia, Kenya and Madagascar are still primarily rural countries with extremely low rates of rural electrification. Furthermore, peri-urban and urban areas are still plagued by intermittent, unreliable and expensive energy provision. Vast infrastructure costs are limiting investment in grid expansion and high connection fees are unaffordable for most private customers.

Such limitations result in a very high reliance on biomass, fossil fuels, and batteries for basic energy needs in many households and small businesses. As a consequence, monetary expenditure on unsustainable energy sources negatively impact the potential for local economic and social development, as sustainable alternatives, which can utilize the abundance of sunshine in those countries, are generally not available in local markets. Additionally, social development is also hindered locally as many households expose themselves to the unsafe and unhealthy after-effects of burning fossil fuels and biomass, which, apart from the dangers to health, also translates into a continued and unsustainable erosion of the local environment.

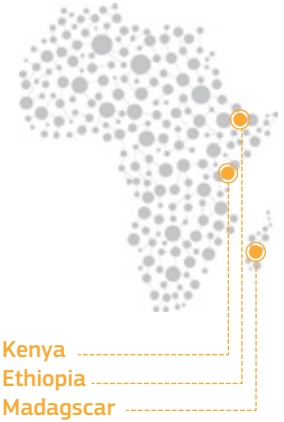
Main activities

The Power Kiosk Project aims to enable and empower the sustainable economic and social development of economically challenged communities in Ethiopia, Kenya and Madagascar through the provision of solar-powered energy services and quality solar products at an affordable cost. Intertwining a sustainable technology solution with an inclusive business model, Power Kiosks foster female entrepreneurship and local businesses opportunity.

The project will be implemented in countries that currently experience varying degrees of economic and social development when compared to one another on a national level, as well as within regions of the respective countries themselves. As a result, energy services and product availability at each Power Kiosk can be adapted to reflect local market dynamics and allow for implementation of best practices in varying market conditions.

Expected results

The project will mobilise 160 Power Kiosks in Ethiopia, Kenya and Madagascar. In total, the project will install 280 kWp of photovoltaic capacity, resulting in over 807 MWh of energy produced per year. Furthermore, the project aims for solar product sales to reach an overall capacity of 535 kWp, in addition to reaching 44 800 households and will also generate 480 local jobs.



Solar Kiosk Kenya Ltd

Life Ministry Centre, 4th Floor,
Rose Avenue-Off Jabavu Road
Nairobi, Kenya

Junte WASMANN
Programme Officer
Email: junte@beheri.com

Light up Liberia: improved energy products (solar lanterns, improved cook stoves and LED solar lighting kits) for 3 000 households and 60 community institutions

Energy technology used in the project
Solar mini-grids

Total estimated cost of the project
EUR 2 478 017

EU co-financing
EUR 619 504

Direct beneficiaries
50 000 rural residents have access to electricity and renewable energy (RE) products; 60 public institutions have energy access;
600 Small and Medium sized Enterprises (SMEs) have access to energy;
5 000 farming households increase incomes through agro-processing; 10 RE enterprises increase sales and market penetration;
120 vocational students study RE; RREA has increased capacity to plan and implement rural energy projects

Context

Poverty in Liberia is entrenched, particularly in rural areas of the country. This is exacerbated by energy poverty. Today, Liberians currently have the most expensive energy of any country in Africa and only 2%, of the 4.3 million population, have access to the modern energy services needed to improve living conditions and to stimulate markets for inclusive and sustainable economic development and growth. As a result, residents spend a high percentage of their income on procuring energy for both household and business use.

Mercy Corps' 36-month project – 'Light Up Liberia' will work to reduce poverty, improve living conditions, and increase community stability. We will do this by improving access to modern, affordable, sustainable and scalable energy products and services. By increasing access to modern energy sources, this project will catalyse economic growth, improve quality of life, enable education, and most importantly increase security.

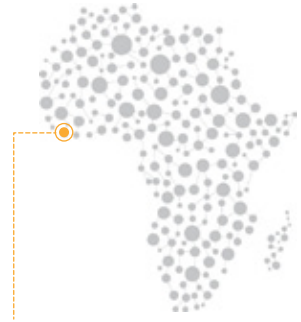
By providing rural villages, in target areas, with affordable and convenient access to modern and clean energy, the project will transform the social and economic lives of rural residents. Improved energy will reduce overall household expenditure on lighting and charging, reduce sickness due to unclean energy use, increase security by lighting the exterior of the households, and will allow households and businesses to engage in income-generating activities such as agro-processing and other productive use activities.

Main activities

The main activities of this project are to develop rural electrification master plans and install pay-as-you-go solar mini-grids serving 3 000 households and 60 community institutions; we also support local entrepreneurs to operate grids and collect payments; establish social enterprise to reinvest utility tariffs to replicate and scale-up model with private sector, reaching more rural households. We also work with local importers and manufacturers of improved energy products (incl. solar lanterns, improved cook stoves and LED solar lighting kits) to co-invest in strategies to address market constraints (support to marketing, distribution, financing and warranties) of improved energy products; support local agricultural cooperatives to increase energy access and invest in productivity-enhancing equipment to increase production, processing and storage of agricultural goods; work with local agro-dealers and micro-finance institutions to facilitate household access to small-scale, energy-efficient agro-processing equipment. Further activities include developing and supporting local vocational schools to offer an approved sustainable energy course with graduating students capable of working in the sustainable energy field; support Rural Renewable Energy Agency to develop strategy for engaging private sector in energy access; increase coordination between public, private and civil society on rural and renewable energy through stakeholder workshops; support policy reforms to promote investment in rural renewable energy.

Expected results

ER1: A replicable model for solar mini-grids is implemented in 60 rural village energy hubs throughout Bong, Lofa and Gbarpolu Counties.
ER2: Availability and access to improved lighting and cooking products is increased in Bong, Margibi, Grand Bassa, Lofa, Gbarpolu, Nimba and rural Montserrado Counties thanks to improved market functioning and supporting services for energy market actors.
ER3: Productive application of energy by agricultural cooperatives and farming households results in improved income for 5 000 farmers.
ER4: Increased local capacity to engage the private sector in developing solutions for rural electrification.



Liberia
Rural and peri-urban areas of Bong, Grand Bassa, Lofa, Nimba, Gbarpolu, Margibi, Rural Montserrado Counties

Mercy Corps Scotland

Lisa SEYMOUR-DOUGHTY
Programme Officer
Email:
ldoughty@uk.mercycorps.org
Website:
wwww.mercycorps.org.uk

Village Infrastructure Angel
Union Strong

Light up our future: renewable electricity for lighting of 1 500 households, 6 schools, a clinic, public offices, shops and streets

Energy technology used in the project

The project uses photovoltaic to power community mini-grids.

Each mini-grid will consist of an array of solar panels, inverters, battery banks, lightning rods and grounding cables, regulators, underground cables, home electricity meters, home wiring, sockets and lamps.

An energy output of 37 045.44 kWH/year is expected, with a cost of 0.38€ per kWh.

In addition to that also solar cookers and solar energy water pumps will be utilized.

Total estimated cost of the project
EUR 1 890 146

EU co-financing
EUR 1 417 610

Direct beneficiaries

The action will target the rural poor and very poor in Lofa, both directly and indirectly through the schools, health facilities and individual households and enterprises that will be connected to the national grid.

Context

None of the residents in the six target communities in rural Liberia, or educational, or health centres and public buildings there have access to basic energy services. There are no plans to connect them to the national grid during this decade. The inhabitants refer to unsafe and expensive means to fulfil their most important energy needs, e.g. by the use of kerosene lamps or fire wood. This severely hampers their economic activities while hospital and schools are hardly able to offer services after sunset.

Thus the specific objective is increased knowledge about and access to renewable energy that is affordable and sustainable for villagers in rural Liberia with focus on Lofa County.

The project will provide renewable electricity for lighting of approximately 1 500 households, 6 schools, a clinic, public offices, shops and streets. Solar pumps will be used for the provision of potable water for the schools and clinic as well as for the irrigation of fields for farming.

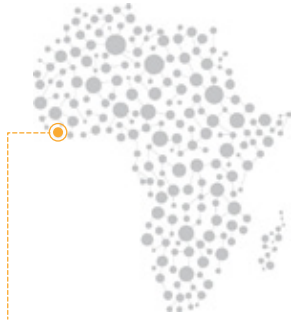
The cost for the renewable energy per household is about 36% less than what households currently pay for their energy use. The sustainability is further strengthened through community-based management and maintenance structures and its linkage with local and national institutions.

Main activities

- installation of 6 community grid solar systems to power 6 community schools, 1 health facility, businesses, 10 025 residents and street lights
- sensitization and training of communities on (the use of) renewable energy and its benefits
- training of Community Grid Management Teams and setting up of maintenance teams
- piloting solar cookers and piloting the local production of cookers
- installation of water tanks with solar energy water pumps in schools and clinic in 6 communities
- setting up of Village Savings and Loan Schemes linked to improving agriculture through solar energy water pumps

Expected results

By the end of the project, the following direct impact will have been achieved in the target communities:
- 60% reduction in the use of fire wood
- Increased time used for productive purposes (more time to sell at night, recreation, less time to fetch water, etc.)
- Increased school enrolment



Liberia
Lofa County, 3 districts (Kolahun, Voinjama, Foya), 6 communities: Kudu, Langbama, Nyebellahun, Taninahun, Mamiekonedu and Koiyamah

Plan International Deutschland e.V.

Nadine KARMANN
Email: Nadine.karmann@plan-deutschland.de
Website: www.plan-deutschland.de
Co-applicants: Volunteers to Support International Efforts in Developing Africa (VOSIEDA) Liberia, INC

Rural Electrification

by Photovoltaic solar systems for 30 secondary schools and 20 clinics

Energy technology used in the project
PV solar systems

Total estimated cost of the project
EUR 2 379 564

EU co-financing
EUR 1 784 673

Direct beneficiaries
30 secondary schools and 20 clinics

Context

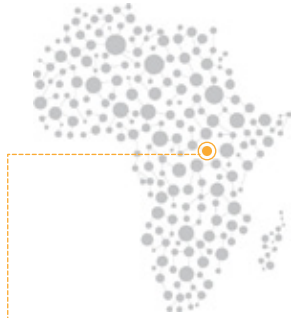
Burundi has one the lowest electricity access rate in the world (4.8% of the total population). The rural areas are the worst affected with an electrification rate of about 1%. Grid connectivity is almost non-existent in rural areas where majority of the population resides. Therefore, the only option to electrification of most rural areas in the short to medium term is off-grid systems and the use of renewable energy as the source of generation.

Main activities

- Identify the sites for the project implementation - this step has already been done by the applicant. Thirty secondary school and twenty clinics in rural areas have been identified as priority areas for off-grid electrification.
- Design the facility – includes solar panel, lighting cables, electrical sockets, batteries, controller, inverters and accessories. The design requirement is the same for all 30 schools and also the same for the 20 clinics.
- Issuing of Tender – the national procurement process will be followed. The Ministry of Energy will write the tender request for proposals, which includes the terms of reference.
- Sourcing of equipment – at moment, there is no PV solar panels and accessories manufacturer. Thus, the winning bidder will source the equipment external, Africa or Europe.
- Installation of the PV solar system – the awarded bidder is responsible for the installation of the PV system in the allocated schools and or clinics. The equipment must be inspected and approved by the project engineer from the Ministry of Energy and Mines to ensure that it complies with the specification provided in the proposal as well as in the tender before installation.
- Promotion of the project – in Burundi, PV electrification is relatively new and unknown to most people living in the rural areas. Thus once the project is commissioned, the renewable energy team is tasked with ensuring that the community is made aware of the new development in their area.
- Training of maintenance staff – the project in consultation with the school or health centre management selects staff that will responsible for the maintenance of the new electricity facility.

Expected results

Electrification of 30 secondary schools will result in their modernisation and improved education results. The electrification of 20 clinics will modernise these facilities and improve the quality of health services offered. In addition, the community will be able to charge their cell phones leading to the development of the communication industry which is vital for rural areas.



Burundi

Ministry of Energy and Mines, Burundi

Mr. Nolasque NDAYIHAYE
Email: nolasiko@yahoo.fr
Tel: 00257 22223888
Fax: 00257 2223337
Website:
www.burundi-gov.bi

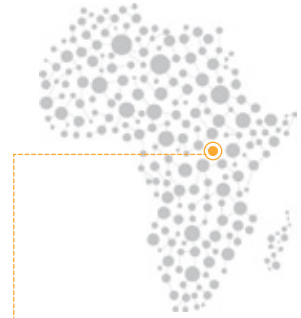
Setting up of solar electricity services
(SESMA-Burundi)

Energy technology used in the project
solar powered stations

Total estimated cost of the project
EUR 1 959 442

EU co-financing
EUR 1 469 342

Direct beneficiaries
provinces or Bubanza, Gitega and Makamba



Burundi

Context

Burundi has one of the lowest electrification rates in Africa with only 4% of the population having access to electricity. To the extent that the majority of households have access to energy services are located in the capital, Bujumbura, the situation in rural areas is very critical. Not only that the population has no access to electricity for basic services (lighting, charging phones, etc.), in addition, the public services can not completely fulfill their mission.

The project will help to increase and improve access for people in poor rural areas of Gitega, Bubanza and Makamba to modern, affordable and sustainable energy services. Around 12 000 people (5 villages and 1,700 households) will benefit from 6 solar powered stations of 25 kWp and micro-networks that will be installed by the project and managed by private operators.

Expected results

- The main community services and productive activities in the areas concerned have regular access to electricity (over 10 000 inhabitants, 50 public or community centers, 20 community businesses).
- An efficient and responsive management and maintenance system is in place to ensure the sustainability of the facilities.
- The capacity of the Ministry of Energy and ABER are reinforced in the provision and management of energy services in rural areas.
- The energy services in place are evaluated, so that they can be replicated in other communities.

Trama Technoambiental SL, Spain

Mr Antoine GRAILLOT
Email:
Antoine.graillot@tta.com.es
Tel: + 34 934463234
Fax: +34 934566948
Website: www.tta.com.es
Co-applicants:
ENECSO SA Burundi
COTI SPRL Burundi
ABER Burundi

Electrification of 4 rural areas in Burundi:

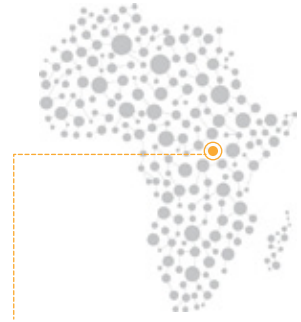
through the rehabilitation of micro-hydro and installation of a photovoltaic plant

Energy technology used in the project
4 micro hydro plants and 1 photovoltaic plant

Total estimated cost of the project
EUR 1 993 119

EU co-financing
EUR 1 600 354

Direct beneficiaries
45 000 people



Burundi

Context

The access rate to electricity of the Burundian population is one of the lowest in the world (about 4% of the total population) despite the significant hydroelectric potential (1700 MW) of which only 32 MW are operated.

This project will improve the living conditions and access to energy services for 45 000 people through the rehabilitation of 4 hydro-electric power stations together totaling 424 kW and the installation of a solar power plant of 40 kWp.

Main activities

The work to be undertaken will include the replacement of the turbine and electromechanical parts of one power plant and regulation of 4 power plants, installation of low and medium voltage lines and the installation of a photovoltaic plant of 40 kWp. Institutional support and training are also provided to plant staff.

Expected results

- The micro-hydro Kigwena is back in service and connected to the national grid REGIDESO and local rural network ABER
- The micro-hydro Ryarusera is back in service
- The mini hydroelectric Butezi is rehabilitated and extended to its rated capacity
- The mini-hydro Nyabikere is rehabilitated, extended to its rated capacity and enhanced with a photovoltaic system 40 kWc
- ABER manages efficiently the distribution of energy and ensures maintenance of Kigwena plants, Ryarusera, Butezi and Nyabikere

ICU Istituto per la Cooperazione Universitaria ONLUS

Mr Daniele BONETTI
Email: Daniele.bonetti@icu.it
Tel: +39 3450612417
Fax: +39 1786034698
Website: www.icu.it
Co-applicant: ABER Burundi

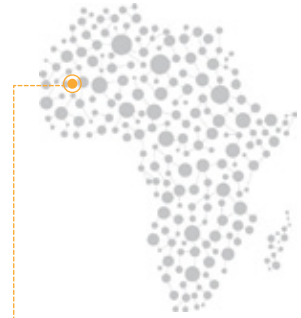
Improving the living conditions for children and their families through access to modern, clean and affordable energy services, in 30 poor communities of Kita circle in Mali

Energy technology used in the project
Solar energy

Total estimated cost of the project
EUR 2 633 827

EU co-financing
EUR 1 500 000

Direct beneficiaries
21 621 persons
(10 849 men
10 772 women)
17 822 children



Mali

Context

At productive level, through approx. 100 local women's associations, the project will boost agricultural production while reinforcing the food production through the use of solar water pumping systems, electric mills and solar dryers. At domestic level, the project will include small solar recharging businesses as well as effective energy efficiency measures such as improved stoves which will decrease impact of smoke on health. Finally, at community level, the project will provide lighting and services at 5 health centers and 24 schools, increasing the impact on education and health.

The project has been designed pursuing the increase of local capabilities, including active participation of local communities, women associations and children. Also, this intervention has been designed for job creation through the establishment of affordable tariff systems in order to ensure future maintenance of all the solar solutions.

Expected results

The project will improve access to modern energy in 30 rural isolated communities of Kayes, Mali, through the installation of off-grid solar solutions at three levels while reinforcing institutional capacities at governmental and community level.

PLAN INTERNATIONAL

C/ Pantoja, 10
28002 Madrid

Luis GARCÍA
Renewable Energies, Climate Change and Innovation Program Specialist
Email:
luis.garcia@plan-international.org

Scaling up Access to Modern Electricity Services in the regions of Ségou and Sikasso via Solar Home Systems and PV-Diesel Mini-Grids by Means of a Fee for Service Business Model

Energy technology used in the project

Solar Home Systems (SHS) and PV-diesel hybrid plants with mini grids

Total estimated cost of the project

EUR 2 666 533

EU co-financing

EUR 1 933 226

Direct beneficiaries

10 000 people will directly and indirectly benefit from the project (households, SMEs, community institutions, rural communities) and at least 5 new local staff members will be structurally employed and trained in the local FRES company in Mali

Context

Foundation Rural Energy Services (FRES) provides rural communities in Mali with affordable access to electricity, key rural infrastructure and employment, which are the building blocks of development. FRES establishes local utility companies that provide high-quality/ high-capacity Solar Home Systems (SHS) and mini-grids to rural populations via a financially sustainable fee-for-service business model.

FRES aims to stimulate private sector development, inclusive economic growth and accelerated improvements in health and education, i.e. new enterprises start-up/expand, improved access to products/services, health centers refrigerate vaccines, children study at night. Using solar energy, FRES directly supports the achievement of five of the Millennium Development Goals, namely those related to poverty, education, gender, health and the environment.

The project will provide:

- 1 000 SHS to rural households, small enterprises and community centres with access to electricity via SHS
- 250 households, SMEs and community centres with access to electricity via hybrid mini-grids by increasing solar PV generation capacity of mini-grid network.
- 300 households, SMEs and and community centres with access to electricity via the installation of a new PV diesel hybrid mini-grid.
- A total of 280 kWp new solar PV installed capacity and displacement of 650 t/C02e annually by year 4.
- At least 5 new local staff members employed and trained by FRES in Mali.

Main activities

- Scaling-up rural electricity access with SHS through established FRES company in rural Mali, via a sustainable and revolving fee-for-service model
- Increasing solar capacity installed at an existing hybrid mini-grid to support growth in demand and productive use activities for existing customers
- Installing and operating new hybrid (solar/diesel) mini-grid
- Installation of the plants for a total capacity of 280 kWp
- Ongoing maintenance and replacement to ensure long term sustainability of installed systems.

Expected results

- Increased access to electricity in the rural communities of Mali;
- Improved living conditions and life opportunities;
- Improved private sector development and economic opportunities;
- Creation of livelihoods through the productive use of energy;
- Enhanced sustainable and inclusive economic growth;
- Reduction in the use of fossil fuels for lighting and communication and in greenhouse gas emissions.

Mali

FRES
Foundation Rural Energy Services

Caroline NIJLAND
Director Business Development
Email: caroline.nijland@fres.nl
Website: www.fres.nl
Co-applicants: La Société de Services Décentralisés (SSD) Yéelen Kura (Mali)

Somali Energy Transformation (SET) Increased Access to Energy Services in Rural and Peri-urban Regions of Puntland, Somaliland and South Central Somalia

Energy technology used in the project

Solar PV mini/micro-grid and stand-alone systems

Off-grid pico solar systems

Improved biomass efficient cook stoves

Total estimated cost of the project

EUR 2 666 816

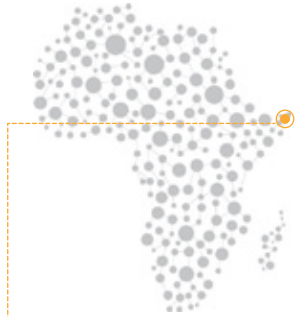
EU co-financing

EUR 2 000 000

Direct beneficiaries

39 800 households (238 800 people);

100 rural/peri-urban businesses



Regions of Puntland
Somaliland
South Central Somalia

Context

The overall objective of this project is to contribute to poverty alleviation, fragility reduction and climate change mitigation for rural and peri-urban people in Somalia. Deployment of renewable energy will contribute to a cleaner energy sector of the country. Achieving this goal will help Somalia move along a low carbon development pathway contributing to climate change objectives, increased energy security, generate new economic opportunities and widen access to energy services. This goal will be achieved through an integrated approach that includes: investment in renewable energies, particularly the infrastructure needed for production and distribution; stakeholder capacity building; integration with dynamic public-private partnerships (PPPs); community mobilization for sustainability and resilience building and provision of adequate technical assistance services. In addition, the program will support appropriate actions for consolidating or developing sector policies/strategies that will encourage the dissemination and use of renewable energies in the country. This integrated program approach assumes that transformational change is only made possible by improving energy market conditions, financing, as well as creating conditions for gaining confidence of investors (small, medium and large enterprises, whether public or private entities).

Main activities

- Development of off-grid pico-solar PV markets in rural areas;
- Development of community electrification schemes in rural areas;
- Supply and installation of solar powered systems for irrigation, health and educational facilities;
- Scaling up production, distribution and marketing of modern energy efficient cook stoves;
- Development or support to youth-led renewable energy enterprises;
- Initiate energy policy dialogue in Puntland and South Central Somalia.

Expected results

- Expanded access to electricity in targeted rural communities in Somaliland, Puntland and South Central Somalia;
- Improved living conditions, access to water, health and education services through adoption and efficient use of renewable energy in targeted areas;
- Increased job and life opportunities for men and women through energy efficiency/productive use of energy in Somaliland, Puntland and South Central Somalia;
- Improved enabling environment and increased capacity of relevant government authorities in the energy sector.

ADRA Deutschland e.V.

Jahn FISCHER
Director Renewable Energies
Email: jahn.fischer@adra.de
Website: www.adra.de
Co-applicants:
ADRA Austria
ADRA Somalia
ADRA UK
Development Action Network, Somalia (DAN)

PRESSD-SL

Promoting Renewable Energy Services for Social Development in Sierra Leone

Energy technology used in the project

Solar PV along with pico and micro hydroelectric plants in an off grid energy hub

Total estimated cost of the project

EUR 7 000 000

EU co-financing

EUR 5 250 000

Direct beneficiaries

858 900 people

Context

The objective is to improve and increase access to renewable, affordable and sustainable energy services for rural poor in Sierra Leone focusing on productive use and scale-up effects.

The outcome depends on the right incentives in terms of delivery methods, products, prices, maintenance schemes and a supportive political environment. Though the Government of Sierra Leone supports decentralised renewable energy, electrification services are not yet able to provide adequate services on a large scale. This project aims to upgrade this capacity through a variety of strategies, including localised grids, stand-alone systems, direct energy support for agricultural activities, job creation and vocational training.

Main activities

- Installation of energy hubs and community charging stations, including site reviews, design selection and build-up of management structures;
- Facilitation of energy entrepreneurship through social marketing and supply chain management;
- Operation of energy systems for secondary schools, hospitals, community health centres, financial institutions;
- Training of trainers and training programmes expanded to polytechnic institutes;
- Sector studies regarding energy consumption patterns, sector learning workshops and governance actions.

Expected results

Improved living conditions and economic revenues:

- 100 solar charging stations and more than 200 jobs created;
- 22 operational energy hubs used by more than 50 000 smallholders;
- Access to off-grid home lighting by more than 15 000 households.

Enhance quality of public services:

- More than 600 kW production capacity installed, producing more than 900 MWh/year;
- More than 6 secondary schools supplied with 3 000 kWh/year;
- More than 2 hospitals connected to localised grid structures;
- More than 3 hospitals supplied by 30 000 KWh/year;
- More than 9 community health centres supplied with 2 000 kWh/year;
- More than 12 community health centres supplied with more than 4 000 kWh/year.

Awareness and capacity in respect to renewable energy systems and scaling-up of the sector:

- More than 20 lecturers and 200 students completed two courses on renewable energy;
- 250 beneficiaries work at the energy hub/solar charging stations;
- A sector study providing information on energy patterns at the household level;
- Functioning learning platform for private sector and government agents;
- 3 training labs in vocational training institutes.

Sierra Leone

Northern region (Bombali, Kambia and Port Loko districts) and Southern region (Kenema, Kono and Kailuhun districts)

Deutsche Welthungerhilfe e.V

Jochen MONINGER
Country Director
Email:
Jochen.moninger@welthungerhilfe.de
programme@welthungerhilfe.de
Web site:
www.welthungerhilfe.de
Co-applicants: Cooperazione Internazionale (COOPI) (Italy); Energy for Opportunity (ENFO) (Sierra Leone); IBIS (Denmark)

Rhyviere II Programme

Village Hydroelectric Grids, Energy and Respect for the Environment

Energy technology used in the project

Solar PV along with pico and micro decentralised hydroelectric plants

Total estimated cost of the project

EUR 6 185 000

EU co-financing

EUR 4 605 000

Direct beneficiaries

- 50 000 direct beneficiaries in 11 municipalities, that is, 50% of the total population of the area
- 400 small local entrepreneurs, the users of the public services of the 7 municipalities (students of 30 schools, users of 11 health centres/hospitals), and 4 user associations (ASURE)

Context

Madagascar's rural electrification needs are glaring. With a rate of access to electricity of only 4.8% in rural areas, about 14 million people still live in the dark without access to modern energy services. Few modern economic activities, notably agri-cultural processing, can develop in this environment.

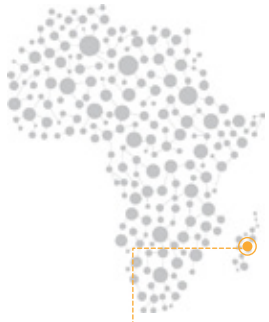
To meet these challenges, the project intends to improve the access of the residents of target villages to modern and sustainable energy services by building four hydroelectric networks and about fifty small decentralised solutions. A parallel business development support plan will also strengthen small, local entrepreneurs. The use of Public-Private Partnerships will create leverage to finance rural electrification.

Main activities

- Implementation of four hydro-electric grids and about fifty decentralised electrification solutions via Public-Private Partnership mechanisms;
- Implementation of a formal loan system for small rural entrepreneurs and assistance in developing their business activities;
- Searching for innovative financing methods;
- Supporting community electrification planning;
- Development of tools and procedures to structure the national rural electrification strategy;
- Installation of 1 000 kW of hydroelectric capacity and 200 kW of solar PV capacity.

Expected results

- 50 000 people in 11 municipalities benefit from access to renewable electricity suited to their needs;
- Income-generating activities based on the use of electricity develop, notably thanks to a suitable credit offering. At least 400 entrepreneurs develop their businesses and increase their incomes;
- Private agents finance at least 40% of the investment costs. In vulnerable areas, PES-type catchment basin protection mechanisms ensure the sustainability of water resources;
- Governance of the rural electrification sector and the national rural electrification strategy are improved via the strengthening of the national and local players responsible for the sector;
- The energy produced costs 0.18 €/kWh.



Madagascar

11 municipalities in the regions of Alaotra Mangoro, Amoron'i Mania and Haute Masiatra

GRET

Julien CERQUEIRA
E-mail: cerqueira@gret.org
Website: www.gret.org
Co-applicants: Enea Consulting (www.enea-consulting.com); CITE

ERD ZIGO: Decentralised rural electrification in Ziro and Gourma Provinces

Energy technology used in the project

Hybrid (PV/biomass/diesel) along with 250 kWh batteries in zone 1 and hybrid (PV/diesel) along with 100 kWh batteries in zone two. Medium and low voltage power lines

Total estimated cost of the project

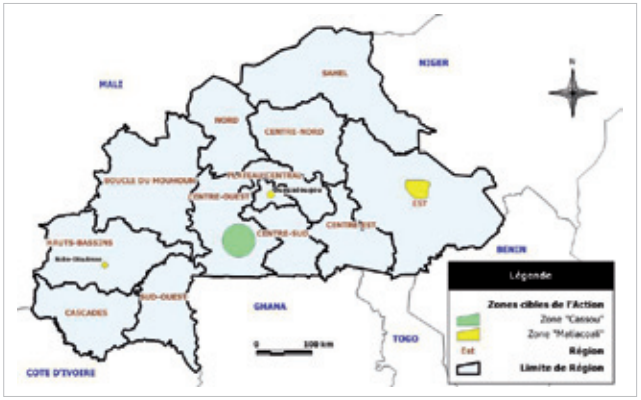
EUR 10 878 992

EU co-financing

EUR 7 794 113

Direct beneficiaries

- 31 000 inhabitants
- 13 health centers
- 86 schools
- 16 power supply systems
- 450 socio-economic activities



Context

The project aims to address socio-economic development and poverty alleviation in Ziro and Gourma provinces (not covered in the coming 5-year national plan), through the increase of electricity access rate from 2% currently (1 locality out of 132 in Ziro, 4 out of 212 in Gourma) to 13% and the valorisation of renewable energy sources.

The project will consist in the construction of 2 hybrid power plants (PV/biomass/diesel and PV/diesel), the distribution networks (medium voltage and low voltage) and customer's connection and the follow up of the power plants operation.

Main activities

- Detailed engineering studies on distribution and supply infrastructures;
- Development of tenders and contracting;
- Construction of the hybrid (PV/biomass/diesel) power plant in Cassou and electrification of 31 rural localities for a combined capacity of 1 450 kW;
- Construction of the hybrid (PV/diesel) power plant in Matiacoli and electrification of 14 rural localities for a combined capacity of 460 kW;
- Follow-up and operation, including definition of the biomass supply channel for Cassou power plant;
- Social mediation, commercial campaigns and set up of power cooperatives (COOPELs):
- Set up of supporting measures, including support to domestic connections, development of economic activities and promotion of low consumption devices;
- Capacity building.

Expected results

- 45 new electrified localities through the implementation of 2 hybrid power plants (PV/biomass/diesel and PV/diesel) with an expected energy production of 3 690 514 kWh/year and 260 km of medium voltage lines connecting targeted localities, 189 km of low voltage lines for distribution inside localities;
- Supporting measures set up, including efficient support to the development and connection of economic and social activities and efficient promotion of low consumption devices;
- FDE expertise strengthened.

Burkina Faso
provinces of Ziro (Central-West region) and Gourma (East region)

FDE
Fonds de Développement de l'Electrification

Jean-Baptiste KABORE
Managing Director
Email:
kaborejb@yahoo.fr
Website: www.fde.bf
Tel: +226 50 31 02 47

Biodigesters Installation and Dissemination Programme

in rural Senegal (PIDB)

Energy technology used in the project
Biodigesters

Total estimated cost of the project
EUR 9 955 225

EU co-financing
EUR 7 394 730

Direct beneficiaries
100 000 local people

Context

The percentage of the rural population of Senegal with access to modern energy services is under 10%. This situation threatens the prospects for the social and economic development of local populations. In addition, the increasing household demand for energy in Senegal has led to heavy pressure on the environment.

The amount of fuel used by households indicates that firewood and charcoal account for 75% of the energy used for cooking. The main goal of the programme is to disseminate and install household biodigesters in Senegal. The construction of 10 000 biodigesters is intended to promote energy access for poor households, to develop renewable energy sources, to address and reduce greenhouse gas emissions and to reduce poverty in line with the Millennium Development Goals.

The project will provide the rural households of nine regions in Senegal with an energy source for both cooking food and for lighting. It is also intended to provide organic fertilisers to support farming activities.

Main activities

- Implementation of a contract for the building of 10 000 biodigesters in 9 500 households and 500 school cafeterias and daaras (koranic schools) for an estimated capacity of 12 000 kW to 30 000 kW;
- Promotion of biodigesters in households, especially with women and local producers;
- Strengthening of the capacities of the people involved and promotion of biogas as a channel for rural entrepreneurship;
- Research and development and development of the infrastructure to optimise biodigesters' functioning;
- Implementation of a financing mechanism to support producers in the development of their activities using biodigester products.

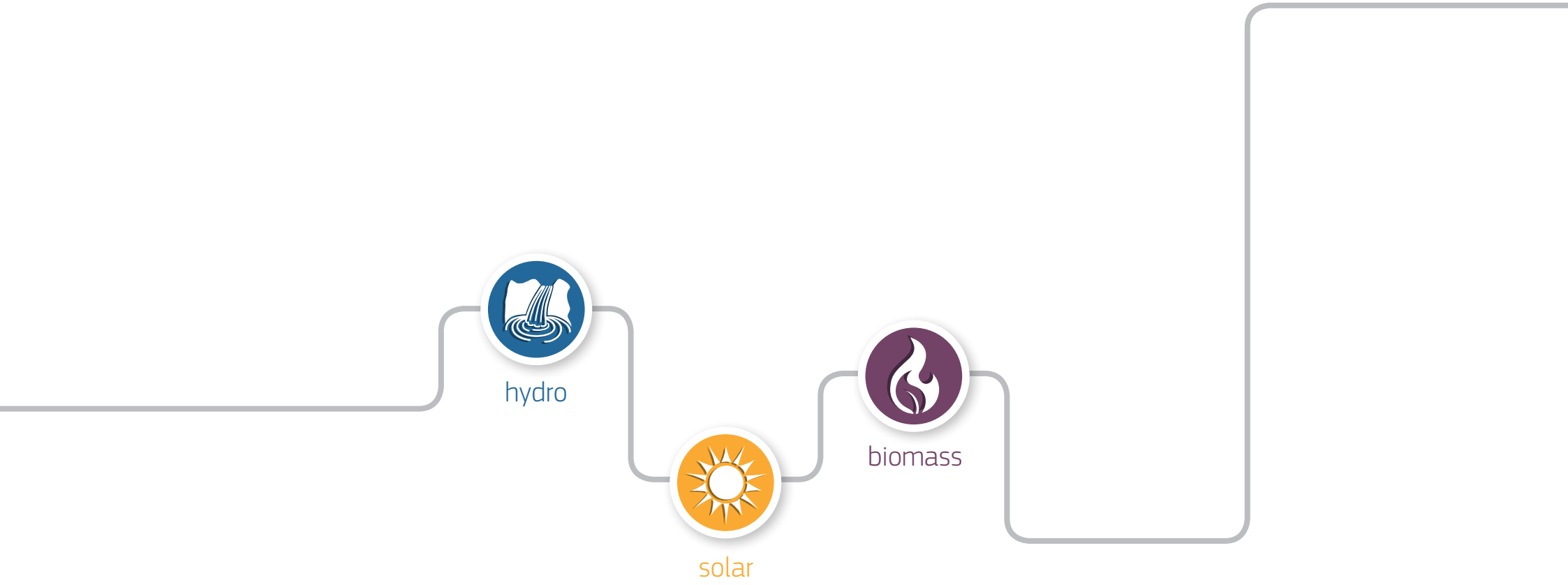
Expected results

- Installation of 10 000 biodigesters;
- 9 500 households and 500 school cafeterias use biogas for their cooking energy needs;
- The living standard of at least 100 000 people is improved thanks to a better household cooking energy supply;
- Farm land productivity is improved thanks to the use of the organic fertiliser produced;
- Household income increases as the cost of fuel for household energy needs is reduced and farm production grows;
- Non-farming jobs are created and teams of bricklayers, market gardeners and livestock farmers appear;
- Estimated energy production of 43 8000 000 kWh/year to 109 500 000 kWh/year, at an estimated cost of 0.33 €/m^3 of biogas.

Senegal
Regions of Fatick, Kaolack, Kaffrine, Diourbel, Thiès, Louga, Saint-Louis, Casamance and Tambacounda

PNB-SN
Programme National Biogaz Domestique du Sénégal

Matar SYLLA
Email: pnbsenegal@yahoo.fr; matarwa1@yahoo.fr
Co-applicant: The government of Senegal


hydro
solar
biomass

5

Fuelling inclusive growth
New Framework, Blending Facilities

Bridging the gap,
Ongoing energy projects financed through EU blending instruments

A joint effort,
Global Energy Efficiency and Renewable Energy Fund

Bridging the gap,
Ongoing energy projects financed through EU blending instruments

Thousands of kilometres of transmission and distribution lines have to be built and impressive amounts of generation capacity need to be constructed if we want to achieve the objectives of Sustainable Energy for All. Public funding is far from being sufficient to cover these needs. It is clear that additional financing is needed to invest in much needed energy infrastructure.

This is why innovative financing is a cornerstone of EU activities and seeks to explore how to use grants in the most strategic way to make large infrastructure projects cost-effective, by providing risk-sharing mechanisms, helping finance revolving funds or subsidising interest rates. Such innovative approaches can encourage additional financing from public and commercial investors to support the development of energy markets, growth and job creation in partner countries.

The role of blending facilities

Blending is a tool which combines EU grants with other public and private sector resources such as loans and equity in order to leverage additional non-grant financing. In line with the Agenda for Change, the use of blending in the external cooperation of the European Union is promoted in order to unlock additional public and private resources and thereby increase the impact of EU external cooperation and development policy. This is being implemented through the EU regional financial facilities, covering the main regions with developing countries:

- EU-Africa Infrastructure Trust Fund (ITF);
- EU Neighbourhood Investment Facility (NIF);
- Caribbean Investment Facility (CIF);
- Latin America Investment Facility (LAIF);
- Investment Facility for the Pacific (IFP);
- Investment Facility for Central Asia (IFCA);
- Asian Investment Facility (AIF).

Energy projects were present right from the start of the first blending operations in 2007. Today almost 40% of the projects financed under these innovative instruments are energy related. Due to the fact that investments in energy are based on a cost recovery role, energy projects are particularly suitable for blending.

Given the strategic importance of energy access as a powerful lever of growth and competitiveness for Sub-Saharan Africa and in line with its commitments to support the Sustainable Energy for All (SE4All) initiative, in 2012, the Commission allocated an additional EUR 400m for access to energy under the SE4All Window for its blending facilities.

The hugely successful EU-Africa Infrastructure Trust Fund has built up a pipeline of new energy projects totalling some EUR 700m in grant requests. These projects have a total investment value of overall EUR 9 billion. To date, the EU has already approved a contribution of more than EUR 105m for projects that are expected to give access to electricity of around 1 million people.

The specificity of the blending instruments relies in the strategic use of a grant element that makes projects and initiatives by public or commercial financiers financially viable and thereby exerts a leverage policy impact. It also improves the quality, speed and sustainability of projects, whilst the careful use of loans increases financial discipline and ownership compared to pure grants.

In addition, EU blending mechanisms are successfully providing support for the development and roll-out of energy technologies that are still new in the specific markets and mitigate the risk associated with investment in sustainable energy as perceived by financiers.

You will find an outline of ongoing energy projects financed through the EU blending facilities across the globe in the following pages.

Africa (Sub-Saharan)

Access to Electricity in the Atlantique Province
in Benin

Total estimated cost of the project
EUR 53 000 000

EU co-financing
EU-AITF SE4ALL ENVELOPE
EUR 20 000 000 approved as Investment Grant

Context

The main features of the electricity sector in Benin are high costs, major power shortages, frequent rolling blackouts, inadequate investment and, finally, high dependency on neighbouring countries for supply. The project has two components: (i) improvement of access in urban and peri-urban areas, including the rehabilitation and extension of distribution networks of urban and peri-urban centres of the municipality of ABOMEY-CALAVI (West suburbs of Cotonou) and of the Atlantique Province (rehabilitation and extension of medium and low voltage lines, creation of new substations) and a connection programme in this area - (ii) rural electrification component to increase electricity access in rural localities of the Atlantique Province.

This project is supported through the SE4ALL envelope of the EU-Africa Infrastructure Trust Fund.

The main objectives of the project are:
(i) improving availability and quality of electricity by enhancing the reliability of the network; (ii) increasing access to electricity throughout the municipality of Abomey-Calavi and in the Atlantic department with an objective of raising the electrification rate in the Atlantic department from 30% in 2012 to 58% in 2016
(iii) Controlling the level of technical and commercial losses, contributing to SBEE's (Société Béninoise d'Energie Electrique) financial recovery. It is estimated that the project should help to reduce technical losses by 40% (from 16% today to about 10%). A training program to strengthen the capacities of SBEE has been planned to ensure the sustainability of the project.

Main activities

This project has two components:

1. Improving access to energy in the urban / peri-urban area, consisting of: rehabilitation and extension of the distribution networks in the urban and peri-urban centres of the municipality of Abomey-Calavi and the Atlantic department: including in particular: (i) the creation of two delivery point substations (63kv/15/20) and their connection via two 63 kV underground transmission lines with an above-ground line loop (ii) extension of medium voltage transmission lines for a total volume of around 70km, (iii) creation of around 70 medium voltage/low voltage transformer stations and (iv) densification of the low voltage grid (around 600 km of low voltage grid), to enable total electrification of the coverage area and reduce informal grids.

A connection programme in Abomey-Calavi and the neighbouring peri-urban areas with the aim of connecting 25 000 new households in the urban area (or some 200 000 people) and making 10 000 additional connections (by regularising illicit connections to "spider web" grids).

2. Rural electrification, targeting electricity access for 80 rural municipalities in the Atlantic department.

The investments to be made should include (i) extension of MV lines, to reach around 130kms in total, (ii) creation of around 120 MV/low voltage substations, (iii) installation of around 250 km of low voltage lines to connect clients and (iv) the connection of clients.

Benin
Municipality of Abomey-Calavi and the Atlantic department

Expected results

The project will enable:

- The connection of 34 000 households, or some 270 000 people (9 000 in rural areas and 25 000 in urban areas) with connection procedures that make it possible to reach the poorest households;
- Improvements in the quality of service for 480 000 people (80 000 existing SBEE clients in the Atlantic department);
- Reductions in the use of generators and petrol lamps, currently used to compensate for the poor quality of the electricity and lack of connections in the Atlantic department;
- Energy savings thanks to the reduction of SBEE's technical losses on the grids.

The total length of the new transmission line is 670 km.

ECOWAS Regional Electricity Regulatory Authority
(ERERA)

Total estimated cost of the project

EUR 8 390 631

EU co-financing

EU-AITF REGIONAL ENVELOPE

EUR 1.7m approved as Technical Assistance

Context

The Economic Community of West African States (ECOWAS) is a public international community in charge of the promotion of co-operation and integration leading to the establishment of an economic union. The purpose of the project is to support the implementation of a regional regulatory authority (ECOWAS Regional Electricity Regulatory Authority - ERERA), leading to the creation of an electricity market, to improve cross-border exchanges and to support the national regulators for setting international exchange tariffs, facilitate the settlement of disputes related to cross-border power exchange, to enhance regional power policy, planning, technical regulation and integration of the regional energy sector. The Project intends to facilitate the construction and operation of regional power generation and transmission projects to: optimise the use of natural resources in the region; reduce the vulnerability of energy systems by sharing risks; and generate economies of scale enabled by large projects. This project is supported by AFD (EUR 2 965 084), the ECOWAS itself (EUR 2 537 979) and the power operators of the ECOWAS member states (EUR 1 187 568); total project cost is EUR 8 390 631. This project is supported by the EU-Africa Infrastructure Trust Fund.

Main activities

- Regional benchmarking of the electricity sector;
- Assistance to OMVS (Senegal river basin commission) and OMVG (Guinea river basin commission) to improve cross-border exchanges;
- Assistance to national regulators for setting international exchange tariffs.

Expected results

The main impact of the project is improved governance in the regional electricity exchanges.

The first phase of the project has been completed with the following results: main achievements: (i) ERERA has been created, installed in Accra and staffed, (ii) many formal and informal consultations with stakeholders have been carried out, (iii) a regulation forum has been annually organized, (iv) a directive on the organisation of a regional electricity market has been approved by the ECOWAS Council of Ministers, (v) ERERA has issued reports on harmonisation of contracts, third party access to the regional networks, benchmarking and market organisation.

Environmental Credit Lines for Kenya, Uganda and Tanzania

Engaging Banks in Energy Transition Projects.

Total estimated cost of the project

Technical Assistance:

EUR 4 700 000

Credit Lines: EUR 93 000 000

EU co-financing

EU-AITF REGIONAL ENVELOPE
EUR 4 100 000 approved as Technical Assistances

Context

The project objective is to bring additional solutions (through technical assistance) to achieve the diversification of energy resources in the East African region and help the region's transition towards renewable energy solutions that are technically, economically and financially viable.

The targeted investments are mainly projects of a maximum amount of EUR 5 M in hydro-electricity, biomass, biogas, solar and wind power. Other types of projects eligible for AFD financing are energy efficiency projects, especially in the Agribusiness sector. These solutions, both energy efficiency (EE) and renewable energy (RE) projects, will also contribute to the improvement of the investors' sustainability, through a more secure power supply and a lower energy bill. The Project consists of 3 successive lines of credit at concessional terms (tenor of over 10 years, below market interest rate) to the local banks who in turn will lend at soft conditions to local investors. To be eligible to the credit line, these investors, mainly medium scale enterprises, will have to sponsor renewable energy (RE) projects – for the main part - or energy efficiency (EE) projects.

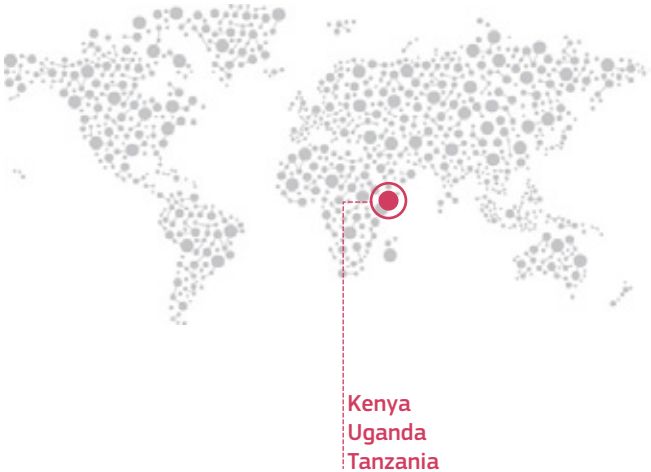
Main activities

3 successive lines of credit for RE and EE projects. Technical assistance to counsel and take local banks and enterprises through the different stages of the projects, from the identification and feasibility analysis phase, through development and construction, to the operating stage.

Expected results

- Soft condition lending resources for RE and EE investments
- Enhancement of technical knowledge for the local banks and the sponsors (small companies, industrials, etc.)

- Additional capacity from renewable energy sources: a pipeline of projects corresponding to 450 MW has been identified by the technical assistance
- Power Production: A pipeline of projects corresponding to a production of 2 079 GWh a year has been identified by the technical assistance
- Variation in CO_2: the expected savings related to the pipeline of projects identified is 1 500 k tonnes CO_2 equivalent per annum



Extension of NIGELEC network

Total estimated cost of the project
EUR 41 000 000

EU co-financing
EU-AITF SE4ALL ENVELOPE
EUR 11 000 000 approved as Investment Grant

Context

NIGELEC strongly relies on imports from Nigeria. The ultimate objective of the project is to promote economic growth and reduce inequalities by increasing access to electricity. This project is supported through the SE4ALL envelope of the EU-Africa Infrastructure Trust Fund.

The project aims at (i) supplying 14 additional areas in the outskirts of Niamey, enabling 45 000 connections, (ii) connecting three isolated grids to the main networks, enabling the shutdown of three small thermal plants and 1 800 connections in 18 villages (on the routes of the lines) and (iii) connecting 30 rural municipalities and 70 villages to the main networks, enabling 14 500 new connections. The ultimate objective of the project is to promote economic growth and reduce inequalities by increasing access to electricity in Niger. In addition, the project should enable the shutdown of 9 small thermal plants and will improve NIGELEC's financial situation.

Main activities

- Extension and reinforcement of distribution networks in Niamey.
- Connection of 3 isolated systems to the main grids.
- Realization of a Distribution Masterplan in Niamey.
- Implementation of a state-of-the-art financial model for NIGELEC.
- Support to the Niger Authorities to prepare a 20-MW photovoltaic project.
- Connection of 30 rural municipalities and 70 villages.

Expected results

- Economic and financial impacts: After year 4, the project is expected to enable the supply of 149 GWh of electricity, which corresponds to 24% of NIGELEC 2012 sales. Electricity supplied thanks to the project is expected to reach 320 GWh per year by 2034.
- The project will enable the shutdown of the thermal plants of Gouré, Ouallam and Tchintabaraden and will reduce the use of individual generation means in the outskirts of Niamey.
- By enabling 45 000 connections in peri-urban areas and 16 300 connections in rural areas, the project will reduce inequalities in terms of access to basic services.

Niger Niamey, Gouré, Ouallam, Tchintabaraden and 18 villages. 30 rural municipalities and 70 villages

Financing Energy Efficiency and renewable energy investments
of private companies in West Africa

Total estimated cost of the project

EUR 37 500 000

Credit Lines: EUR 93 000 000

EU co-financing

EU-AITF SE4ALL ENVELOPE
EUR 4 500 000 approved as Investment Grant
EUR 1 500 000 approved as Technical Assistance

Context

Communities and industrial sectors in the West African Economic and Monetary Union (WAEMU) zone countries suffer from an unreliable electricity service and extremely high electricity prices. Given this situation and the share of oil and biomass in the energy balance of WAEMU countries, energy efficiency and renewable energy development is essential for the economies in the area.

The project concerns a concessional facility of EUR 30m aiming at engaging regional local banks to finance a better use of energy and ensure the promotion of renewable energy in the private sector. The proposed program aims at promoting energy efficiency and renewable energy investments in West Africa, with a particular focus on the WAEMU zone (particularly Senegal, Côte d'Ivoire and Burkina Faso).

This banking intermediation program will target energy efficiency and renewable energy investments made by public and private companies in the region. A technical assistance program will complete the credit facility mechanism by supporting and stimulating the development of energy efficiency and renewable energy projects up to the financing offer. The project will help generate and prioritise financially viable investments through softening market-based financing conditions applied by commercial banks to loans provided to their clients. This project is supported through the SE4All envelope of the EU-Africa Infrastructure Trust Fund.

Main activities

- Set up of the concessional facility of EUR 30m
- Technical Assistance program which will be implemented by a project management unit

Expected results

The project will notably contribute to:

- Reducing the environmental and budgetary burden faced by many countries considering their heavy dependence on more and more costly fossil fuel imports and improving local public policies.
- Reducing energy consumption (and the related greenhouse gas emissions) in companies that have significant energy-saving potential through their activities and increasing the share of diversified renewable energy in the energy mix.
- Developing local resources, providing local employment and offering new income opportunities by (i) building and stimulating the energy efficiency and renewable energy market led by local sponsors, (ii) mobilizing a wide range of skilled persons at the local level, (iii) improving the competitiveness of the local enterprises by reducing the costs of energy.
- Developing a better knowledge of risks in banks, which will be encouraged to finance this type of projects towards a more reasonable and rational assessment of the risk-taking related to sustainable projects.
- Increasing the skills of project sponsors, by disseminating technical knowledge that will allow them to prepare high-quality projects.
- Building a reference framework for technologies and projects that can be reproduced.

Green Energy Finance
for Indian Ocean Region (GEFIOR)

Total estimated cost of the project
7 100 000

EU co-financing
EU-AITF SE4ALL ENVELOPE
1 700 000 approved as Technical Assistance

Context

Mauritius and Seychelles are experiencing a mounting energy crisis. They depend heavily on imported fossil fuels, while experiencing a sustained growth of their energy demand. For these small island countries, vulnerable by nature, developing sustainable energy policies by investing in Renewable energy (RE) and promoting Energy Efficiency (EE), is a clear way to contain and control energy costs, and strengthen economic resilience to external shocks. The project consists of a soft credit line of EUR 60m to the major Mauritian banks, including their affiliates in the neighbouring countries, aiming at engaging local banks in financing optimisation on the use of energy and promotion of renewable energy in the private sector. This project is supported through the SE4All envelope of the EU-Africa Infrastructure Trust Fund.

The project also includes technical and financial assistance (1) to support project developers to identify and develop sustainable energy projects, and to support partner banks to improve their appetite in and skills to appraise and finance projects (2) to partially bear the cost of detailed energy audits.
The banks involved are among the best in Africa. The process of selection, the eligibility, the support provided by the technical assistance ensures that the projects funded are good, sound and sustainable.

Main activities

The proposed project has two components:
1. A soft credit line of EUR 60m to the major Mauritian banks, including their affiliates in the neighbouring countries, aiming at engaging local banks in financing optimisation on the use of energy and promotion of the renewable energy in the private sector. The final client beneficiaries will receive a grant corresponding to 8% of the amount of the loan upon due certification of the effective implementation of the investment.

2. Technical and financial assistance consist of the following main components:
- Support to sub-projects founding, preparation and implementation
- Capacity building and transfer of knowledge
- Awareness raising and dissemination of best practices at regional level
- Monitoring and Evaluation of the program
- Financial assistance to the Energy audits studies

Expected results

Expected impacts:
- Renewable Energy: 25MW installed
- Energy savings: 50GWh/year
- CO_2 reduction: 240kTeqCO_2/year
- Recycled water: 1 000k m^3/year
- Waste reduction: 4 kT/year

Mauritius
Seychelles and
Neighbouring countries

Support for Geothermal Development in Tendaho (Ethiopia)

Total estimated cost of the project

EUR 39.1m (for Phases I and II)

EU co-financing

EU-AITF SE4ALL ENVELOPE
EUR 4.5m approved as Technical Assistance
EUR 3m approved as Investment Grant

Context

The main objective of the project is to support the economic development of Ethiopia through the development of geothermal energy, a clean and reliable renewable resource, therefore enhancing Ethiopian resilience to climate change. For the Tendaho field, the Government of Ethiopia has set two targets:

- the delineation and initial development of the shallow reservoir allowing in the short term exploitation of the shallow resource at the maximum sustainable capacity, presently estimated to be at least 10 MW;
- the exploration of the deep reservoir by the initial drilling of deep exploration wells. The Government of Ethiopia target is the development in the medium terms of at least 100 MW of generation capacity.

Therefore, the Tendaho geothermal development Project – Phase 1 - has the following three specific objectives:

1. The definition of the extension of the shallow reservoir by the drilling of up to 6 step-out wells
2. The exploration of the deep reservoir by the initial drilling of deep directional wells with a depth of 2500 m.
3. Strengthening of capacities for implementation of EEP (Ethiopian Electric Power) and GSE geothermal drilling activities.

This project is supported through the SE4All envelope of the EU-Africa Infrastructure Trust Fund as well as the French Development Agency.

Main activities

The main components of the projects are:
Phase I - Component 1: Technical Assistance to the joint implementation unit (JIU)- three-year Technical Assistance Program which will cover notably the support of a geothermal consultant and of a drilling service company.

Phase I - Component 2: Production drilling in the shallow resource in Dubti. The shallow resource development requires 6 step-out wells at shallow depth i.e. approximately 600 m.

Phase I – Component 3: deep drilling in the Tendaho area
Three fields are suitable for deep drilling operations in the large Tendaho area: Dubti, Ayrobera and Allalobeda.

Phase II – Components 1 and 2: development of a 10 to 12 MW power plant.

Component 1 and 2 of Phase I will allow for the preparation of a full feasibility study for a 10 to 12 MW power plant. The project is cost-effective according to analysis from a preliminary feasibility study. Subject to the Government of Ethiopia's request and successful completion of its due diligences, AFD will provide the required financing through soft loans.

Expected results

The project will allow the delineation of a clean and reliable geothermal resource. It will contribute to the development of this sub-sector which is still insufficiently known in Ethiopia where most of the power sector development is done through the development of hydro-electricity with potential high environmental and social impacts.

Ethiopia, Afar region

Quantifiable results of the project are:

- 10 MW of additional renewable energy capacity
- Power production of 80 GWh / year
- 10 PhD-level engineers benefiting from training
- 60 staff benefiting from training on drilling activities
- Reduction in Greenhouse gas emissions: 45 k tonnes CO_2 equivalent / year
- 42 FTE of direct employment during construction phase
- 20 FTE of direct employment during operations and maintenance

Masaka-Mbarara 220 kV Transmission Line

Total estimated cost of the project
EUR 50 000 000

EU co-financing
EU-AITF REGIONAL ENVELOPE
EUR 800k approved as Technical Assistances

Context

Energy needs of Uganda are huge and growing. The project consists of the construction of the 220 kV transmission line between the towns of Masaka and Mbarara in Uganda. The project will contribute to improving reliability and security of supply to the Western Region of Uganda and provide transmission capacity to cater for Grid interconnection between Uganda and Rwanda. In order to ensure project sustainability, the project participates in the improvement of operational and technical performance of the interconnected grids. This project is supported by the EU-Africa Infrastructure Trust Fund.

Main activities

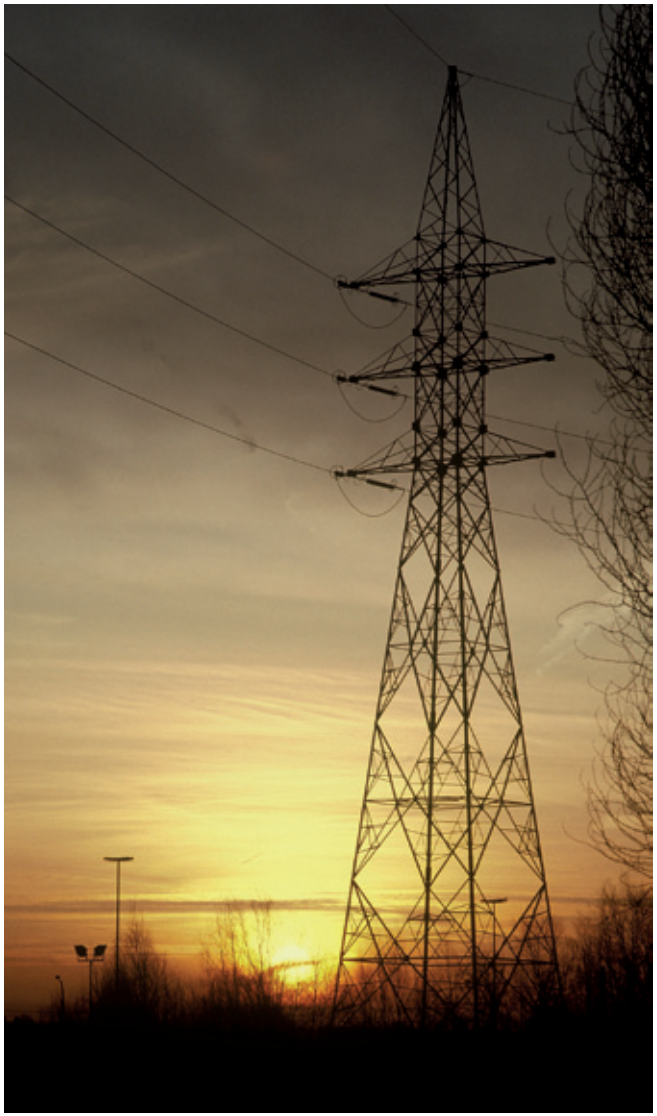
- Feasibility study including Technical, Financial, Economic, line route selection and Environmental and Social impact assessment, scoping and preparation of Tender Documents;
- Detailed Environmental and Social Impact Assessment study and Resettlement action Plan study;
- Consultancy Services for detailed design and supervision of works;
- Construction of a new 135km, 220kV Double circuit transmission line on steel tower structures from Masaka West to Mbarara North substations;
- Substation extension at Masaka West (2 x 220kV Transmission line bays, 220kV busbar extension, Plant house extension);
- Substation extension at Mbarara North (2 x 220kV Line bays, 220kV busbar extension, Plant house extension).

Expected results

Access to abundant, less costly, and more environmentally sustainable energy.

Uganda
Rwanda
Masaka West and Mbarara North

Mauritania
Senegal interconnection



Total estimated cost of the project

EUR 150 000 000

Credit Lines: EUR 93 000 000

EU co-financing

EU-AITF REGIONAL ENVELOPE
EUR 5 500 000 approved as Technical Assistance

Context

Mauritania and Senegal are considering a 225 kV power interconnection between Nouakchott in Mauritania and Tobene in Senegal (60 km north of Dakar) (about 400 km). This line will enable Mauritania to export power from its large gas to power investment project (350 to 700 MW) to Senegal and Mali, at a cost among the lowest (about EUR 0.10 production cost) in the sub-region (after hydro). It is clearly a transformational project for the economies of Mauritania and Senegal, and potentially Mali. This project is supported by the EU-Africa Infrastructure Trust Fund.

The sustainability of the project is ensured given that (i) gas-fired power plants and transmission are very mature technologies and (ii) power generated from domestic gas is expected to remain more competitive than other thermal options in the long term.

Main activities

- Feasibility, detailed design, assistance for the bidding process;
- Technical assistance for the supervision of works;
- Construction of the approx. 400 km transmission line.

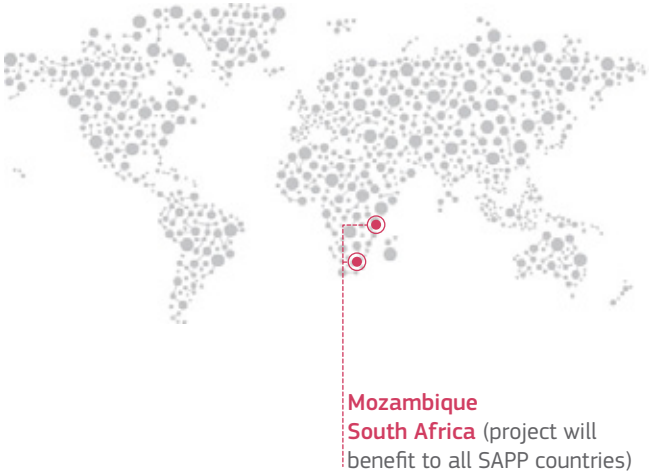
Expected results

Access to more, less costly, and more environmentally sustainable energy.

Mozambique Backbone STE
(Sistema de Transporte de Energia)

Total estimated cost of the project
EUR 2 000 000 000

EU co-financing
EUR 2 200 000 approved as Technical Assistances



Mozambique
South Africa (project will benefit to all SAPP countries)

Context

The project aims to connect the central electricity grid in Mozambique to the electricity grid in the south, to transmit electricity generated in the Tete province to the Southern African Power Pool (SAPP) as well as to the domestic market. The development of the transmission system will be linked to the development of two large hydropower generation projects in the Tete province (Cahora Bassa- North Bank 1 250 MW and Mphanda NkWua 1 500 MW). The Transmission System will extend from Tete to Maputo and further on to the SAPP, and is expected to improve the reliability of affordable electricity in the Southern African region as a whole. It will particularly impact the urban centres along the route, such as Maputo. This new system will also help to solve the severe power shortage which the SAPP is currently experiencing.

Main activities

- Comprehensive Strategic Regional Environmental and Social Assessment (SRESA);
- Technical Assistance for the incorporation and start-up of a new public company responsible for owning shares in various special purpose vehicles (SPV) for electricity generation and transmission projects;
- Construction of the transmission backbone.

Expected results

- Improved access to reliability of affordable electricity;
- Power transfer capability of 3 550 MW;
- Temporary jobs created:3 591 FTE;
- Permanent jobs created: 100 FTE.

WAPP Power Interconnection
in West Africa (Ghana-Burkina Faso-Mali)

Total estimated cost of the project

EUR 145 000 000 – estimated, to be updated as part of studies

EU co-financing

EU-AITF REGIONAL ENVELOPE EUR 1 200 000 approved as Technical Assistance

Ghana,
Burkina Faso,
Mali
Tumu, Bobo Dioulasso, Sikasso/Bamako

Context

The Project is one of several West African Power Pool (WAPP) regional projects and aims to build a regional power interconnection between Tumu (Ghana), Bobo Dioulasso (Burkina Faso) and Sikasso/Bamako (Mali), with the aim of providing the abundant, less costly, and more environmentally sustainable energy from a coastal country to a region where less than 20% of people have access to an expensive energy. The interconnection will be an estimated 800km in length, connecting Burkina Faso, Mali and Ghana. Connecting the three countries will allow Burkina Faso and Mali to have access to cheaper power resources (such as hydropower, and natural gas) which Ghana has more in abundance both for itself and for export.

Main activities

- Updating of previous studies is ongoing, on technical, environmental and social, as well as contractual issues, to ensure the technical, economic, environmental and social feasibility and benefits as well as the future operation and power exchanges between countries/utilities;
- Construction of the approx. 800 km transmission line.

Expected results

- Access to more abundant, less costly, and more environmentally sustainable energy;
- Decreasing financial burden for utilities in getting energy;
- Expanding the regional power network;
- Contributing to the regional power market to be built.

Liberia Energy Access

Total estimated cost of the project
EUR 34 740 000

EU co-financing
Investment grant to AFDB of EUR 10 000 000

Context

This project is supported through the SE4All envelope of the EU-Africa Infrastructure Trust Fund.

The project will improve access to reliable and cost-effective services for households and public institutions in the Great Monrovia as well as River Gee County. The main project components include: i) Infrastructure: Expansion of Distribution network in Great Monrovia and River Gee County, ii) Access Scale-up: connection of project affected areas, iii) Capacity Building, iv) Project Management.

Main activities

The grant will inter alia finance the physical implementation of the distribution network in River Gee county and the distribution in Great Monrovia.

Expected results

In addition to the fact that approximately 90 000 people (15 000 households) will benefit from the project, it is also expected that the project will contribute to the creation of temporary jobs during construction activities and stimulate the development of additional income-generation activities via the hiring of subcontractors and a variety of general services (repair and maintenance, security, cleaning, catering). Most importantly, it is expected that an improved and increased access to electricity will stimulate the development of small and medium enterprises (SMEs) and industries in the project area, and women and young people can specifically benefit from this.

Liberia Great Monrovia and River Gee county

Regional Rusumo Falls Hydropower Project

Total estimated cost of the project

EUR 368 800 000 – estimated, to be updated as part of studies

EU co-financing

TA to AFDB of EUR 250 000
Investment grant to AFDB of EUR 12 750 000

Context

The project aims at financing the construction of Rusumo Falls hydro-power plant on the Tanzanian and Rwandan border and construction of associated transmission lines connecting the power plant to the national grids of Burundi, Rwanda and Tanzania. More precisely, the scope of the project consists on construction of: (i) 80 MW capacity hydro-power plant (civil, hydro-mechanical and electromechanical works, a switchyard) to be shared between the three countries; and (ii) 387 km of 220 kV transmission lines and associated substations (98.2 km in Tanzania, 161 km for Burundi and 119 km in Rwanda). The Regional Rusumo Falls Hydropower Project will play a key role in enhancing economic and social development in the region and in increasing regional power generation, while establishing and accelerating the volume of cross-border energy exchanges. The project is part of the Priority Action Plan (the project and programme list for short- and medium-term implementation) under the Program for Infrastructure Development in Africa (PIDA).

Main activities

The project benefits from two grants of the EU-Africa Infrastructure Trust Fund:

- An investment grant which aims to finance, jointly with the African Development Fund, the construction of 161 km of 220 kV transmission line in Burundi from Rusumo hydro-power plant to Gitega (via Muyinga), new 220 kV substation at Muyinga and upgrading of Gitega substation to 220 kV level;
- A Technical Assistance (TA) grant to finance a consultant to handle the project procurement of a supervision consultant in collaboration with the project implementation agencies (REGIDESO, EWSA and TANESCO) and to provide procurement training to the staff of the three executing agencies.

Expected results

From a regional perspective, the project objective is to enhance power generation & transmission capacity for Burundi, Rwanda and Tanzania and contribute to regional economic stability and integration by developing and managing joint assets. The power generation plant will generate 80 MW and the three countries will share the power equally.

The beneficiaries are the households, small and medium sized enterprises, artisanal and mining operations located in the project area and those who will benefit from the incremental generation, and the north-eastern region of Tanzania who are not currently connected to the grid will get electricity from their national grid. In addition, the power off-takers (REGIDESO, EWSA and TANESCO) would benefit from this project by: (a) the opportunity to replace high cost thermal plants and lowering their overall cost of power generation; and (b) improving their ability to better meet the peak loads on their national power systems from a less expensive power source.

The expected result will be poverty alleviation through improved, sustainable management and development of the shared waters, and enhanced regional stability through increased cooperation and integration among the three states. In energising productive uses, regional energy integration will fuel the economic engine for value creation. In addition, access to electricity will reduce the negative impacts of inadequate modern energy access, especially for women, who bear a disproportionately high burden of this limited access.

WAPP - Coastal Backbone transmission line

Total estimated cost of the project

Total cost range: from EUR 97 m to EUR 130 m depending on the option finally selected (single or double circuit line).

EU co-financing

EU-AITF REGIONAL ENVELOPE

EUR 1.75m approved as Technical Assistance

Context

The objective of the Project is to reinforce the 330 kV Abobo (Cote d'Ivoire) – Prestea (Ghana) power exchange on the West African Power Pool (WAPP) Coastal Backbone, and enable increased power exchanges between the two countries. The Project will form part of a larger 330 kV transmission link, which will connect Côte d'Ivoire to Ikeja West in Nigeria. The Project will enhance regional integration by supporting the interconnection of Côte d'Ivoire and Ghana and more broadly strengthen the Coastal Backbone, which will also connect Benin, Togo and Nigeria, as well as supporting the WAPP more generally. The project is supported by the EU-Africa Infrastructure Trust Fund.

Main activities

The project is in the preparation phase. The main project activities include amongst other the technical, economic and financial feasibility study, as well as the preparation of functional specifications and bidding documents, the line route study, the Environmental and Social Impact Assessment, the Resettlement Action Plan and the Environmental and Social Management Plan for the project.

Expected results

Main impacts:

- Increased power exchanges between the two countries and along the coastal backbone (from Nigeria to Cote d´Ivoire).
- Increased electricity supply in the countries.

Africa Energy Guarantee Fund
(AEGF)

Total estimated cost of the project
EUR 600 000 000

EU co-financing
EUR 1 000 000 approved as Technical Assistance has been approved under ITF for the Feasibility Study Phase.
In addition: Financial Instruments of up to EUR 30 000 000 in the pipeline

Context

The AEGF aims to provide risk mitigation and credit enhancement solutions to facilitate more private sector investment in energy generation, access to energy, and energy efficiency projects. Only projects which meet the SE4All objectives will be eligible for AEGF support.

This Operation is in its preparation phase: upstream design and feasibility study. This includes: market study, investment strategy and fund positioning; product range and pricing methodology; legal feasibility; governance structure; financial modelling; definition of roles of service providers; and an implementation plan. Identification of potential players in the market of sustainable energy resources.

Specific objectives: The AEGF will facilitate installation and rehabilitation of transmission lines, distribution lines, and power generation plants. With energy accessibility one of the main aims, there will be a focus on increasing the number of people connected to the grid, and increasing the generation output of the continent.

This project is supported with a technical assistance grant from the regional envelope of the EU-Africa Infrastructure Trust Fund.

Main activities

Facilitation of renewable methods; reduction in energy tariffs through increases in and improvements to energy supply and infrastructure; improved regional interconnectivity through infrastructure and power generation facilitating trade in power across the region.

Expected results

Total capital output of EUR 600m

Interconnection Bolgatanga-Ouagadougou

Total estimated cost of the project
EUR 34 740 000

EU co-financing
Investment grant to AFDB of EUR 10 000 000

Context

The objective of the Project is to construct a 210km interconnector from Ouagadougou in Burkina Faso to Bolgatanga in Ghana, to enable imports of Ghana's low cost hydro-power and gas fire thermal-generated energy. The importing of energy from Ghana is required due to the lack of affordable indigenous energy sources in land-locked Burkina to complement supply quantities available for import from Côte d'Ivoire. The Project, as a priority investment of the WAPP, will increase power exchanges between WAPP members (Ghana and Burkina). A feasibility study has been carried out showing that the project is sustainable under certain conditions of capacity transferred and tariffs. Such conditions have been taken into account in the negotiations of the power purchase and transfer agreements between SONABEL, GRIDCO and VRA. The grant will reduce debt repayments for the duration of the loan tenor. This project is supported with a technical grant and interest rate subsidies from the regional envelope of the EU-Africa Infrastructure Trust Fund.

Main activities

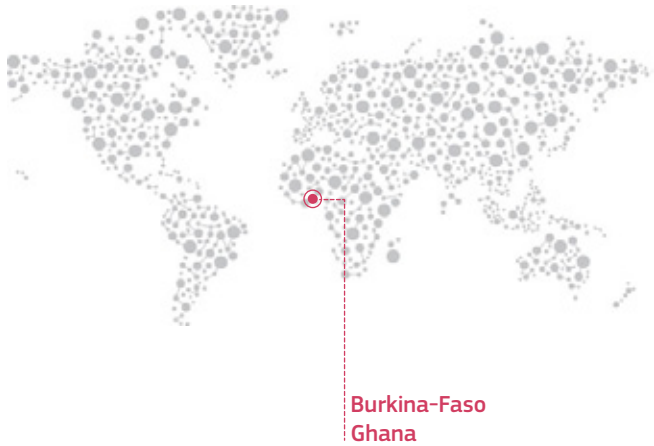
The project concerns the construction of a 210 km 225 kV simple circuit power transmission line from Bolgatanga (Ghana) to Ouagadougou (Burkina Faso). About 37 km of the line will be in Ghana and 171 km in Burkina Faso. The project includes the expansion of the existing 161/34.5 kV into a 225/161/34.5 kV substation at Bolgatanga (Ghana), as well as the 225/90 kV substation at Zagtouli (Burkina Faso), plus a new 90/33 kV substation at Patte d'Oie (Burkina Faso), as well as associated national SCADA (Supervisory Control and Data Acquisition) systems and rural electrification of villages located along the line in Burkina Faso.

Expected results

The project will allow additional energy in Burkina Faso:

- Energy imported from Ghana: an estimation of 158 GWh a year by 2020
- expanding electric supply in Burkina Faso at least cost,
- improving the quality of supply by reducing the occurrence of power cuts and diversifying power supply sources.
- avoiding GHG emissions from less efficient fuel-oil fired power generation and fuel transport by road, thereby contributing to security of supply.

Main benefit is enabling electricity trade between Ghana and Burkina Faso derives from the replacement of costly Heavy Fuel Oil (HFO)-based thermal generation in Burkina Faso with gas-fired generation from Ghana, including the associated benefit in CO_2 emission savings.



Cote d'ivoire, Liberia, Sierra Leone, Guinea (CLSG) Interconnection

Total estimated cost of the project

EUR 370 000 000

EU co-financing

EU-AITF REGIONAL ENVELOPE
EUR 4 750 000 Technical Assistance for pre-investment studies
EUR 12 500 000 Interest Rate Subsidy for EIB loan financing of the project, and
EUR 10 000 000 direct grant for AfDB funding of the rural electrification in Sierra Leone

Context

Côte d'Ivoire, Liberia, Sierra Leone and the forest region of Guinea have all been affected by civil war or civil disorder resulting in the destruction of infrastructure, a drop in local production and a sharp decline of their respective economies. As a result, they all have a severely limited or non-existent public electricity service. The CLSG project addresses three major constraints in the electricity subsector of CSLG Countries (i) low access to electricity (28.3% in 2010); (ii) a structural production deficit of over 30% and demand whose growth averages 6% to 8% per year; (iii) fossil fuel-powered thermal energy that accounts for 85% of all power, which, because of soaring oil prices, contributes substantially to high electricity costs.
The CLSG Interconnector project involves constructing a 1 357km transmission line allowing exports initially from Cote d'Ivoire to Liberia, Sierra Leone, and Guinea. The interconnector aims to provide these countries with an increased supply of electricity to meet growing demand and to create incentives for hydro-power potential, such as in Sierra Leone and Guinea, to be realised. Approximately 12.5% of the total Project cost will finance rural electrification. The project is supported by several grants from the regional envelope of the EU-Africa Infrastructure trust Fund. In the future the interconnection could be used to export the large hydro-power potential in Guinea.

Main activities

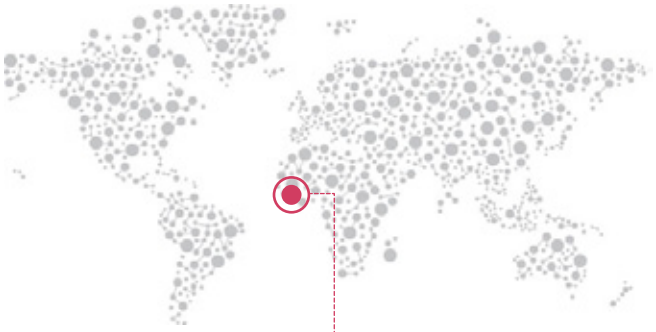
The project consists of the construction of approximately 1 357km of high voltage transmission lines through Côte d'Ivoire, Liberia, Sierra Leone and Guinea, the extension of existing or the construction of 12 new high voltage substations in Man, Nzerekore, Linsan, Yekepa, Buchanan, Monrovia, Mano, Kenema, Bikongor, Bumbuna, Yiben and KamakWie, and the rural electrification of commmunities along the line route. The transmission line will consist of approximately 130 km in Côte d'Ivoire, 115 km in Guinea, 552 km in Liberia and 560 km in Sierra Leone.

Expected results

The project will allow additional energy supply and increased access to electricity at low cost compared to the current situation in the countries:

- 25 million people will benefit from the electricity transmitted;
- 60 000 households (370 000 people) with new connection to electricity in rural areas;
- 332 GWh/year of reduction in energy consumption;
- Permanent jobs created: 200 FTE;
- Temporary jobs created: an estimated 1 000 person/years

In addition, the project is expected to contribute to a reduction of electricity shortages and greenhouse gas emissions.



Côte d'Ivoire
Liberia
Sierra Leone
Guinea
Cities of Man
Nzerekore
Linsan
Yekepa
Buchanan
Monrovia
Mano
Kenema
Bikongor
Bumbuna
Yiben
KamakWie
and commmunities along the line route

Africa Sustainable Energy Facility (ASEF)

Total estimated cost of the project

EUR 50 000 000

EU co-financing

EUR 5 000 000 approved as Direct Grant

EUR 3 000 000 approved as Technical Assistance

Context

The ASEF has been established to promote private sector investment in renewable energy (RE) and energy efficiency (EE) projects. Specifically, this Project will attempt to mobilise financing from local financial institutions for smaller RE and EE projects. The projects financed via the local financial institutions must be in line with EIBs social and environmental standards and must be fully eligible with EIB guidelines and standards. This project is currently supported with a technical assistance and a direct grant from the regional envelope of the EU-Africa Infrastructure Trust Fund.

Main activities

Provide individuals in East Africa with access to affordable, reliable and renewable energy sources, which in turn will reduce the cost of their electricity and provide access to clean cooking facilities. This will be done via:

- A first loss guarantee to the ASEF, needed to facilitate risk sharing/co-financing structures with local financial institutions.
- Technical assistance to the local financial institutions/intermediaries to develop the technical and financial knowledge needed to structure cost-effective projects. Details of the TA output will be determined on a case-by-case basis, and can include financial, legal or technical/engineering expertise.

Expected results

Total capital output of EUR 60m

During the pilot phase: in **Kenya, Uganda, Tanzania and Rwanda**
The second phase will expand the Facility to more countries (depending on the success of the initial phase).

Benin Togo Power Rehabilitation

Total estimated cost of the project
EUR 73 200 000

EU co-financing
EUR 12 250 000 approved as interest rate subsidy for EIB loan financing of the project

Context

The Project aims at reinforcing and rehabilitating the electricity transmission networks of Togo and Benin. It involves wider transmission network reinforcements and therefore will deliver overall country benefits that do not target a specific group of beneficiaries.
The Project is expected to significantly improve the reliability of supply, to avoid the use of low-efficiency local generators and to decrease network losses. In particular, the replacement of local supply from diesel generators with hydro-electric or more efficient power bulk sources will enable to reduce generation costs and negative environmental impacts. The improved reliability of supply and the lower generation costs will have a direct impact on businesses and individuals at country level, and also increase private sector investment and growth, which in turn will lead to poverty alleviation.
This project is supported with an interest rate subsidy from the regional envelope of the EU-Africa Infrastructure Trust Fund.

Main activities

Engineering, procurement, construction and operation of the following facilities:

- A new overhead line Parakou-Onigbolo and the associated substation works that will complete the transmission ring interconnecting Togo and Benin;
- A new overhead/underground connection Sakété-Tanzoun-Ouando and the associated substation works that will reinforce the network supplying the important industrial area around Porto Novo and Cotonou;
- The rehabilitation of the existing overhead line Lomé-Cotonou-Sakété-Onigbolo and the associated substations. The rehabilitation will extend the technical life of the line and the substations by 20 years, whose construction dates back to the seventies, so reducing the risk of major power supply disruptions in the populated coastal areas of both countries.

Expected results

The Project is expected to significantly improve the reliability of supply, to avoid the use of low-efficiency local generators and to decrease network losses. In particular, the replacement of local supply from diesel generators with hydro-electric or more efficient power bulk sources will enable to reduce generation costs and negative environmental impacts. The improved reliability of supply and the lower generation costs will have a direct impact on businesses and individuals at country level, and also increase private sector investment and growth, which in turn will lead to poverty alleviation.
The estimated quantifiable system benefits of the Project are:

- 5.3 GWh/year of non-supplied energy avoided, corresponding to circa 30 hours of power outages avoided;
- 14.1 GWh/year of locally generated energy avoided, resulting in a 2.5% decrease of the country power generation costs;
- 24.3 GWh/year of network losses avoided, resulting in a 1.5% decrease of the country power generation costs;
- Emission of 14 $ktCO_2e$/year avoided.

Felou Hydropower plant / Aménagement Hydroélectrique de FELOU

Total estimated cost of the project
EUR 179 000 000

EU co-financing
Interest rate subsidy grant of EUR 9 300 000 for EIB loan financing to the three countries involved.

Context

The Félou Hydro-power Plant Project involves the construction and operation of a run-of-the-river hydro-power plant in the Senegal River. The Project is being developed as part of a wider programme to develop the hydro-power potential of the countries under the Senegal River Basin Development Authority (OMVS): Mali, Mauritania, Senegal and Guinea. The project contributes to meeting growing demand of electricity and to the reliability of power supply Mali, Mauritania and Senegal by the use of renewable energy. It constitutes the least-cost solution for additional power supply in the region, and helps defer investment in thermal power generation capacity. When in operation, the project will also displace some thermal generation, thereby allowing for economies in fuel consumption and avoidance of atmospheric and GHG emissions.

The Project is also part of the West African Power Pool (WAPP) master plan, and as such falls under the PIDA Priority Action Plan. To finance the hydro-power plant's turnkey contract, EIB has agreed to provide a EUR 11m, 18-year loan to Mali, Mauritania and Sénégal.

This project is supported through an interest rate subsidy from the regional envelope of the EU-Africa Infrastructure Trust Fund

Main activities

The project consists of the engineering, study design, manufacturing, delivery, construction erection, commissioning and operation of the hydro-power plant at the Felou falls.
The main components are:
- Rehabilitation of an existing weir,
- Powerhouse,
- Three Bulb turbine/generator units, with a nominal capacity of 21 MWe each,
- Water intake structure,
- Substation and overhead transmission line, 225 kV, 10 km to the existing grid substation at Médina-Kayes.

In addition, the project includes upgrading of access roads and railway facilities as well as improvement of the existing dispatch centre at Manantali (including integration of the Félou plant) and of the telecommunication system of the interconnected system of SOGEM and the National Utilities.

Expected results

The project will allow additional affordable and sustainable energy supply with reduced environmental impact:
- Total Capacity of 59 MWe and average annual energy production of 325 GWh redistributed into the main grid
- Reduction in CO_2 / greenhouse gases estimated at 161 k tonnes CO_2 equivalent per year

Lake Turkana Wind Power

Total estimated cost of the project
EUR 625 000 000

EU co-financing
EUR 25 000 000 approved as financial instrument and to be used as capital contribution to the project

Context

The wind farm will sell electricity to the national utility Kenya Power & Lighting Co. ("KPLC") under a 20-year power purchase agreement (PPA) and is developed under Kenya's IPP program attracting private investors to the sector. Once completed, the Project will initially represent up to 17% of the country's installed capacity in a fast growing, supply constrained market. The project is the first large development of wind energy in Kenya and the region and could be a basis for further development of wind energy in East Africa. It will contribute to satisfying currently unmet and growing electricity demand using a renewable energy resource and will thus reduce the country's dependence on imported fossil fuels and climate-sensitive hydro-power, support economic development and avoid the environmental impacts of fossil fuelled electricity generation. The project will contribute to increased supply and reliability of electricity to the general grid, thus supporting economic activity and employment, as well as household needs. The underlying project is also expected to deliver more affordable prices for final consumers than currently available. In addition, locally generated electricity will ease the import bill and thus positively affect the balance of payments.

Main activities

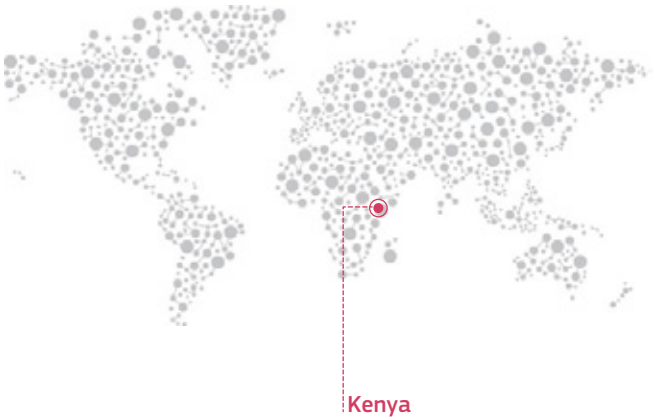
Development, construction and operation of a 310 MW wind farm near Loiyangalani in Marsabit district, approximately 12 km east of Lake Turkana in northern Kenya.

Expected results

Output: The project will contribute to satisfying currently unmet and growing electricity demand using a renewable energy resource. The project will thus reduce the country's dependence on imported fossil fuels and climate-sensitive hydro-power, support economic development and avoid the environmental impacts of fossil fuelled electricity generation.

Outcome: 310 MW of wind generation capacity.

Impact: support the development of a sustainable and secure supply of electricity that is necessary for long term economic growth and development in Kenya. Increase of economic activity in remote areas.



Itezhi-Tezhi Hydro Power and Transmission Line

Total estimated cost of the project

EUR 267 700 000

EU co-financing

EUR 600 000 Technical Assistance for support to ZESCO
Total of up to EUR 17.6m Interest Rate Subsidy for EIB and AFD loan financing of the project.

Context

Zambia is a large, landlocked country facing daunting development challenges. Poor infrastructure, notably electricity shortages and a thin and deteriorating road network, is a fundamental impediment to releasing the country's economic potential, making the economy more diversified and resilient and sharing the gains from growth more broadly. The project concerns the construction of a new 120MW hydro-power plant at the Itezhi Tezhi dam on Zambia's Kafue River, and of a ca. 280km transmission line from Itezhi Tezhi to Lusaka.

The project, by provision of renewable energy for national consumption and export, will help reduce the share of generation from fossil fuels in the Southern African Power Pool (SAPP) and in Zambia. In this way, the project will reduce CO_2 emissions by increasing electricity generation from hydro-power resources in Zambia for sale into the domestic market and in the region, reducing the SAPP's net power deficit at an economically and financially viable cost.

The project is important for two other projects supported by the EU-Africa ITF, namely Caprivi Link and Transmission Line Kafue Livingstone.

This project is supported through an interest rate subsidy and a technical grant from the regional envelope of the EU-Africa Infrastructure Trust Fund.

Main activities

There are two main components of the ITT Project: first, the construction of a new 120MW hydro-power plant at the Itezhi Tezhi dam on Zambia's Kafue River, and second the construction of a ca. 280km transmission line including substations from Itezhi Tezhi to Lusaka.

Expected results

Thanks to the project, there will be national savings from import reductions (EUR 23m / annum) and substantial outages reduction. Increase in energy supply thanks to the project will be equivalent to 7% points (equivalent to around 50 000 households). There will be additional 120MW available of renewable energy leading to the expansion and strengthening of transmission system with impact regionally in the Southern African Power Pool (SAPP).

Zambia The dam is situated some 250 km west of Lusaka, and the grid connection point situated in the western outskirts of Lusaka. An intermediate substation is in Mumbwa, some 140 km west of Lusaka

Transmission Line Kafue-Livingstone

Total estimated cost of the project

EUR 70 300 000

EU co-financing

EUR 5 200 000 Interest Rate Subsidy for EIB loan financing of the project

EUR 350k - Technical assistance for strengthened the implementation capacity of the promoter, ZESCO.

Context

Zambia is a large, landlocked country facing daunting development challenges. Poor infrastructure, notably electricity shortages and a thin and deteriorating road network, is a fundamental impediment to releasing the country's economic potential, making the economy more diversified and resilient and sharing the gains from growth more broadly.
The project will consist of:

In south-west of Zambia:

1. building of a new Livingstone 330 kV/220 kV substation;
2. the upgrade of the existing 341 km 220 kV line from Kafue Town substation to new Livingstone substation to into 330 kV voltage;
3. the upgrade of a 10 km 220 kV transmission line from Livingstone to Victoria Falls and
4. the reinforcement of existing Kafue Town and Muzuma substations
5. increase of transformer capacity and establishing spare transformers for 330/220/132/88 kV voltages; 6) engineering support, environmental studies and mitigants for the project. The capacity of the line will be increased from present 120 MW4 to 360 MW.

This project is supported with an interest rate subsidy and a technical assistance grant from the regional envelope of the EU-Africa Infrastructure Trust Fund.

Main activities

The project consists of upgrading the existing 220 kV high voltage transmission line Kafue-Muzuma-Livingstone to 330 kV voltage, with extensions to the corresponding high voltage substations.

The project benefits from already existing infrastructure (line corridor and 330 kV pylons), resulting in relatively low environmental impact and investment costs. The technology used in the project is proven.

Expected results

Direct output is the upgrade of the 341 km transmission line. The project will allow an increase in the transmission of energy in Zambia and more largely within the SAPP countries. By providing renewable hydro power to southern markets of the Southern African Power Pool (SAPP), it will reduce generation from fossil fuels in Namibia and South Africa, and will accelerate the development of hydro resources in Zambia. Furthermore, the stronger transmission system will reduce transmission losses. Finally, the upgrade will remove a bottleneck for utilising the full capacity of the Caprivi Interconnector in Namibia.

Liberia Via Reservoir

Total estimated cost of the project

EUR 258 000 000

EU co-financing

Total EU-AITF grant amount of EUR 4 800 000 - Technical assistance to EIB

Context

While Liberia has a large potential for hydro-electric power, all sites have the shortcoming that very little electricity would be produced in the dry season (December - May) without a reservoir.

The Via Reservoir on the confluence of the Via River and the St Paul River is the only attractive site in the country for the construction of a storage reservoir. One hydro plant on the St Paul River which would definitely benefit from the reservoir is the 80-MW Mt Coffee plant which is currently being rehabilitated. Two other sites on the St Paul River (120 MW and 214 MW), have been identified and can be expected to be developed when the Via Reservoir exists. That also applies to a hydro plant which can be established at the toe of the Via dam. The capacity of that plant could be in the order of 60 MW. Key parameters of the reservoir are: dam length about 5 400 meters; maximum height between 38 and 40 meters, surface area 298 km^2, storage volume 4 950 million m^3.

This project is supported with a technical assistance grant from the regional envelope of the EU-Africa Infrastructure Trust Fund.

Main activities

1. Environmental and Social Impact Assessment and Environmental and Social Management Plan; (2) Detailed Feasibility Study.
2. Construction of the Via Reservoir.

The results of both studies are required before the project would be undertaken.

Expected results

The studies will contribute to the reduction of GHG emissions through the identification of the economically and financially viable hydro-power development potential on the St Paul River. The Via Reservoir will increase the hydro-power potential in Liberia.

Mount Coffee Hydro-power Rehabilitation

Total estimated cost of the project
EUR 186 200 000

EU co-financing
EUR 1 500 000 approved as technical assistance for the financing of a full environmental and social impact assessment (ESIA) and a Resettlement Action Plan (RAP)

Context

The project aims at rehabilitating an inoperative hydro-power plant, located on the St. Paul River approximately 27 km north-east of Monrovia in Montserrado County, with capacity of up to 80 MW, re-establishing the reservoir and re-constructing the associated two transmission lines to Monrovia. It provides renewable hydro-electricity to support economic development of a post-conflict country. The additional generation capacity is necessary to support a major, largely donor-funded re-electrification program of the Liberian capital, Monrovia. Later on, the electricity will be provided through the related regional CLSG project to other parts of the country, and to the regional interconnections. The project utilizes existing infrastructure (dams, spillways and concrete structures) of an old power plant, and is thereby considered as a least-cost hydro development for Liberia

This project is supported with a technical assistance grant from the regional envelope of the EU-Africa Infrastructure Trust Fund.

Main activities

Generation of power through renewable resources.

Expected results

Liberia's 14-year civil war left the country's power generation capacity and national grid completely destroyed. High cost, scarcity and unreliability of current electricity supply from imported fossil fuels are severe bottlenecks for economic development in the country. By increasing generating capacity, the reconstruction of the Mount Coffee Hydro Power Plant will contribute to economic growth and employment generation. In the longer term, access to electricity may also enable the development of higher value added industries and could thus contribute to diversifying Liberia's export base and reduce the country's vulnerability to exogenous shocks.

Namibia Biomass and Solar Power

Total estimated cost of the project

To be defined

EU co-financing

EUR 2 300 000 approved as Technical Assistance.

Context

NamPower, Namibia's power utility, produces only 39% of Namibia's electricity needs from domestic generation and through bi-lateral agreements imports the balance from its neighbours. Namibia's demand for electricity is growing as the Namibian economy develops and as Namibia is providing electricity to its rural areas.

The development and demonstration effect of a biomass and solar power plant would potentially have a positive impact beyond the supply of sustainable energy, namely on agriculture, rural employment and food security.

This project is supported with a technical assistance grant from the SE4ALL envelope of the EU-Africa Infrastructure Trust Fund, for the funding of a Feasibility Study to assess the implementation of a biomass-fired power plant in Namibia and harvesting invader bush as primary fuel; as well as the implementation of a solar power (CSP/PV) plant with storage in Namibia.

Main activities

Feasibility study: confirm that the technical solution will fit into the supply mix, that it will make economic sense and is environmentally acceptable. The deliverables of this phase are typically a techno-economic report, a project model, inputs to the supply model and an environmental report. Lastly, as the implementation cost estimates are now determined with some level of accuracy, the funding strategy is investigated and resolved.

Expected results

To be defined

Rehabilitation of Ruzizi I and II

Total estimated cost of the project
Not known at this stage

EU co-financing
EUR 3 000 000 for Technical Assistance

The Ruzizi river, the natural border river between the **DRC, Rwanda and Burundi**

Context

This Project concerns the rehabilitation of Ruzizi I and II hydro-power plants (HPPs), which are situated on the Ruzizi river, the natural border river between the DRC, Rwanda and Burundi. Rehabilitating the plants will result in households benefitting from a reduction in poverty and industries will benefit from increased production, both of which will contribute to regional economic development. Along with its economic benefits, maximising the capacity of this natural renewable energy resource will align with environmental sustainability objectives. Furthermore, the cross-border nature of the Project means that all countries involved will benefit from the improvements and this is likely to improve the integration of these currently or previously conflict-stricken nations. The Project will increase both the operational efficiency of the plants and power generation, thereby relieving the region of the electricity supply gap it has been facing. Furthermore, expanding the capacity will ensure more individuals obtain energy from renewable sources, thereby reducing the region's reliance on heavy fuel generators.

Main activities

The ITF grant will support the following three components:

- Institutional studies for Ruzizi I and II, which will analyse the necessary institutional and financial reforms, recommend technical and commercial management options for Ruzizi I and II and prepare the tender documents for the recruitment of a private operator of the HPPs;
- Technical studies for Ruzizi I and II that will identify the rehabilitation requirements of the HPPs and their associated infrastructure, and will also prepare tender documents; and
- Technical assistance for EGL in the planning and coordination of the regional energy power generation and transmission projects. The focus of the assignment will be on institutional and technical support, environmental and social issues, capacity development for project implementation and communication.

Expected results

The Project involves the rehabilitation of both plants to ensure that maximum generating capacity is reached. For Ruzizi I, generation is expected to increase by 7.6 MW, while Ruzizi II is expected to see an expansion of 7.8 MW. The Project is also expected to contribute to climate change mitigation and regional integration.

Ruzizi III Hydro-power Plant

Context

Electricity generation in Democratic Republic of Congo; Burundi and Rwanda is insufficient and unreliable and presents a key constraint on economic growth and development.

The project consists of the construction of a 147 MW Hydro-power Plant on the Ruzizi river bordering DRC and Rwanda. It will be developed as a Public Private Partnership, through a concession provided to a private investor to develop, build, operate, and maintain the plant. Ruzizi III would be the third hydro-power development on the river following Ruzizi I ("RI" - 29.8 MW) and Ruzizi II ("RII" - 43.8 MW). Reinforcement and extension of the transmission and distribution system in the DRC, Rwanda and Burundi will allow the evacuation of the additional 147 MW that will be produced by the new Ruzizi III hydro-power plant.

Main activities

- Construction of the 147 MW Hydro-power Plant;
- Reinforcement and extension of the transmission and distribution system in Democratic Republic of Congo; Burundi and Rwanda.

Expected results

- 147 MW of additional RE capacity;
- Energy produced estimated at 710 GWh a year by 2020.

Total estimated cost of the project

Currently estimated at EUR 398 000 000

EU co-financing

TA grant amount of EUR 4.2m utilised for the financing of feasibility studies for the project.
Grant support in the range of EUR 25m is currently in the pipeline for supporting the implementation phase of the project with an interest rate subsidy and investment grant from the SE4ALL envelope

DRC, Burundi and Rwanda

The existing Ruzizi Plants are located at the northern section of the River close to Lake Kivu, however Ruzizi III shall be built south of this location, close to the Burundi border and relatively close to the town of Bugarama in Rwanda.

Update of the WAPP Masterplan

Total estimated cost of the project

EUR 1 310 000 (total cost of the update of the master plan)

EU co-financing

Technical Assistance grant of EUR 1 300 000

Context

The West African Power Pool (WAPP) is a public international organisation operating in the general interest of the West African regional power system with a view to ensuring reliable power supply throughout the region. The WAPP Master Plan will provide an overall strategy and framework for preparing and implementing all WAPP priority projects in light of conditions in the West African energy market. The updated Master Plan is expected to allow various agents in the electricity sector to have a clear, global and coherent view of the future development of the electricity generation and transmission infrastructure in West Africa and will complement stakeholders' decision making during project implementation.

This project is supported through a technical grant from the regional envelope of the EU-Africa Infrastructure Trust Fund.

Main activities

The project is completed. The main activities were:

- Extensive data collection of generation capacity and transmission networks as well as assessing the demand and supply balance;
- Economic study for the purpose of creating a preliminary generation and transmission development plan based on least-cost economic criteria;
- Network performance stability studies to check the development plan would lead to stable and reliable operating conditions;
- Environmental analysis to identify key implementation issues and associated costs;
- Financial analysis to determine the capacity of regional utilities to support the development of planned investments; and
- Setting up an economically optimum development programme, comprising a priority list of generation and transmission projects as well as outlining an implementation strategy.

Expected results

A number of WAPP priority projects are expected to be implemented in the next few years under the new Master Plan, including the Gouina Hydro-power Plant, the CLSG Interconnector and Riviera-Prestea Interconnector Project. Feasibility studies have been initiated for a number of other priority projects identified by the Master Plan: Fomi, Kassa B, Souapiti hydro-power plants.

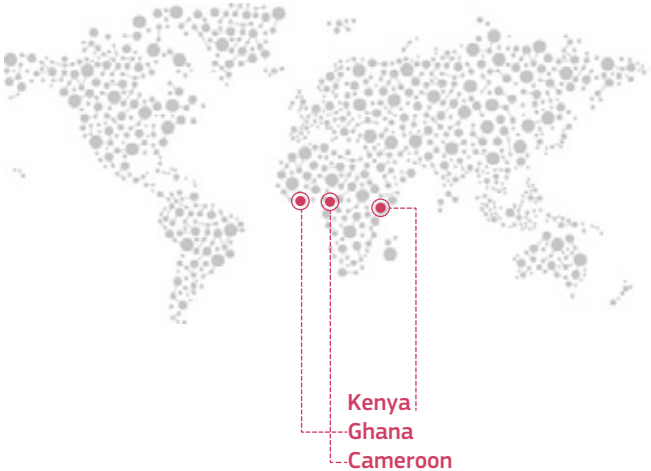
Clean Cooking Program for Africa (GLPGP)

Total estimated cost of the project

Not known at this stage

EU co-financing

- TA to KfW of EUR 1.7m
- Investment grant of up to EUR 15m cleared in principle



Context

This project is supported through the SE4All envelope of the EU-Africa Infrastructure Trust Fund.

The public-private partnership "Global LPG Partnership" (GLPGP), which is an officially named initiative under the SE4All Clean Cooking Solutions High Impact Opportunity (HIO), aims to create market conditions that will support the replacement of outdated cookstoves and open fires with modern energy services based on Liquified Petroleum Gas (LPG), in order to address the significant health and environmental problems that result from the use of solid fuels.

Main activities

The ITF grant will support a feasibility study of a multi-phase investment initiative to accelerate large-scale national transitions to LPG for clean cooking. Currently, Kenya, Ghana and Cameroon are the countries which show the highest likelihood that a transition to LPG will be successful. The feasibility study will identify and develop investments and policy recommendations to unlock and grow the market for LPG as a major solution for clean cooking in these countries on a rapid and large scale, to mitigate the mortality, health effects, and environmental damage caused by cooking with solid fuels.

The study comprises two phases. During Phase 1, a country-level master investment plan for the pilot countries Kenya, Ghana and Cameroon will be developed, based on a thorough evaluation of the starting conditions, enabling environment, opportunities and constraints across the entire LPG value chain. The Phase 2 deliverable will be a set of justified business cases for a series of coordinated investments in appropriate parts of the LPG ecosystems for the two most promising countries.

Expected results

- Country-level master investment plans for the pilot countries Kenya, Ghana and Cameroon;
- Justified business cases for a series of coordinated investments in appropriate parts of the LPG ecosystems for the two most promising countries.

GET FiT East Africa Program - Uganda Roll-Out Phase 1

Total estimated cost of the project
EUR 427 600 000

EU co-financing
Investment grant to KFW EUR 20 000 000

Context

This project is supported through the SE4All envelope of the EU-Africa Infrastructure Trust Fund (EU-AITF).

The GET FiT Uganda Program is designed to leverage private investments into renewable energy generation projects in Uganda.

The main objective of the GET FiT Program is to assist East African nations in pursuing a climate resilient low carbon development path resulting in growth, poverty reduction and climate change mitigation.

Rollout of the program has started in Uganda. In Uganda, GET FiT intends to fast track a portfolio of about 15 small scale renewable energy (RE) generation projects, promoted by private developers and with a total installed capacity of roughly 170 MW. In addition, the program provides technical assistance to the regulator to ensure sustainable improvements in the area of tariff modelling, project due diligence and tendering of concessions for small RE. The revision of the standardised Power Purchase Agreements for small RE has further added to a sustainable improvement of the investment climate in Uganda.

Main activities

The FiT Premium Payment is intended to make small-scale renewable energy generation projects (between 1MW and 20MW in installed capacity) financially viable, by increasing the regulated REFiT to a sustainable level thus enabling a large portfolio of projects to move to financial close and into implementation. The Investment Grant from the EU-AITF will co-finance the Premium Payment Mechanism for the GET FiT Program and mainly the Solar Facility aiming to introduce the first grid connected solar PV plants to Uganda.

Expected results

Expected project results:

- An increase in Uganda's energy production by approximately 20%, thus making a contribution to tackling an anticipated supply shortage that is likely to emerge in 2015;
- Facilitating (or significantly improving) access to energy for at least 150 000 additional households (approximately 0.9m people), especially also in rural areas due to added capacity and strengthening of regional grids;
- Leveraging approximately EUR 400m in privately financed RE generation projects (with a leverage ratio of public to private funds deployed of roughly 1:5), with a limited amount of grant funding (representing approximately 7% of overall cashflow to the RE projects over 20 years);
- Emission reductions of roughly 11m tons of CO_2 over the 20-year lifespan of PPAs.

East African Community (EAC), first launched in **Uganda** (countrywide)
Discussions on how the approach could be replicated in other countries are ongoing within Africa (**Zambia**, **Kenya**, **Ghana**),
but also in **Albania** and **Vietnam**

Geothermal Risk Mitigation Facility for Eastern Africa (GRMF)

Total estimated cost of the project

EUR 150 000 000 of pipeline of projects during implementation period

EU co-financing

Direct grant to KFW of EUR 30 000 000

Context

The Facility aims to increase production of clean and reliable energy to supply power grids in Eastern Africa by attracting public and private developers and to mobilise finance for the construction of geothermal power plants. The Facility provides grants to co-finance surface studies and exploration drilling programmes for public and private developers. The support will reduce the high upfront risks related to the development of geothermal resources and thus geothermal power. The projects it supports are located in Eastern Africa in the countries that have signed the Addis Ababa resolution with the African Union Commission on Geothermal Energy

The Facility will induce positive social and environmental impacts and contribute to sustainable development by providing affordable and reliable power from sustainable sources. It will increase the amount of renewable energy by supporting exploration activities leading to the development of four geothermal power plants with a combined capacity of 300 MW.

Main activities

The EU-Africa Infrastructure Trust Fund grant will support:

- Drilling of exploration wells at the most promising geothermal prospects to assist developers secure finance for subsequent exploration or appraisal wells (it will finance 40% of the drilling costs);
- Surface studies to determine the optimal location of exploration wells at the most promising geothermal prospects (it will finance 80% of the cost);
- Development of regional geothermal database of prospects in the region;
- Pre-application training workshops for developers; and
- Support to AUC for management of the project.

Expected results

Successful development of geothermal fields leading to the development of four geothermal power plants in the region with an installed capacity of 300 MW in total. Examples of promising projects include: 150 MW in Tendaho, Ethiopia; 30 MW in Rwanda; 60 MW in Kenya at Silali; and 60 MW in Kenya at Longonot.

The ITF grant will support:

- Drilling of exploration wells at the most promising geothermal prospects to assist developers secure finance for subsequent exploration or appraisal wells (it will finance 40% of the drilling costs);
- Surface studies to determine the optimal location of exploration wells at the most promising geothermal prospects;
- Development of regional geothermal database of prospects in the region;
- Pre-application training workshops for developers; and
- Support to AUC for management of the project.

Burundi
Comores
Djibouti
DRC
Ethiopia
Eritrea
Kenya
Rwanda
Tanzania
Uganda
Zambia

Kibuye-Goma-Birembo Interconnector

Total estimated cost of the project
EUR 65 000 000

EU co-financing
TA to KFW EUR 761 258

Context

Electricity consumers and small and medium sized businesses in both Rwanda and the eastern DRC suffer from limited and unstable access to electricity, which limits their economic productivity and social development.

The objective of the Rwanda – DRC transmission line is to contribute to a reliable and cost-effective power supply in particular in the load centres Goma and Kigali. Through a qualitatively and quantitatively improved energy supply, the economic and social development in Rwanda and the Eastern DRC will be promoted, in addition to strengthening regional integration. Beneficiaries of the project will predominantly be electricity consumers in Rwanda and Eastern Congo. The project is part of the larger NELSAP programme, which creates a regional power exchange market among the five NELSAP countries Burundi, DRC, Kenya, Rwanda and Uganda. Global objectives.

The Project is part of the NEPAD infrastructure Short-Term Action Plan (STAP) that includes the NBI projects. The STAP lays special emphasis on the interconnection of power grids as a key option for increasing access to electricity on the continent. The project also falls within the priorities of countries as reflected in the reference documents, notably the Poverty Reduction Strategy Papers 2005-09 of the various countries. Thereby the project complies with the strategic intervention pillars of the ITF.

Specific objectives – The specific objective of the Rwanda – DRC transmission line is to contribute to a reliable and cost-effective power supply in particular in the load centres of Goma and Kigali thus enhancing the interconnection capacity in the region.

Main activities

The Technical Assistance from the ITF was used for the funding of a study defining the formal and technical selection criteria for pre-qualification of bidders and the preparation of an End-of-line document for Engineering, Procurement and Construction contractors. This study included social and environmental impact assessment and preliminary design of the transmission line.

The financial contracts were signed in late 2011 and all remaining contracts finalized and signed in late 2013. Geotechnical studies and topographic surveys are currently being carried out and the contractor has mobilized, with civil construction due to begin in late May and earth moving works to begin in the second half of June.

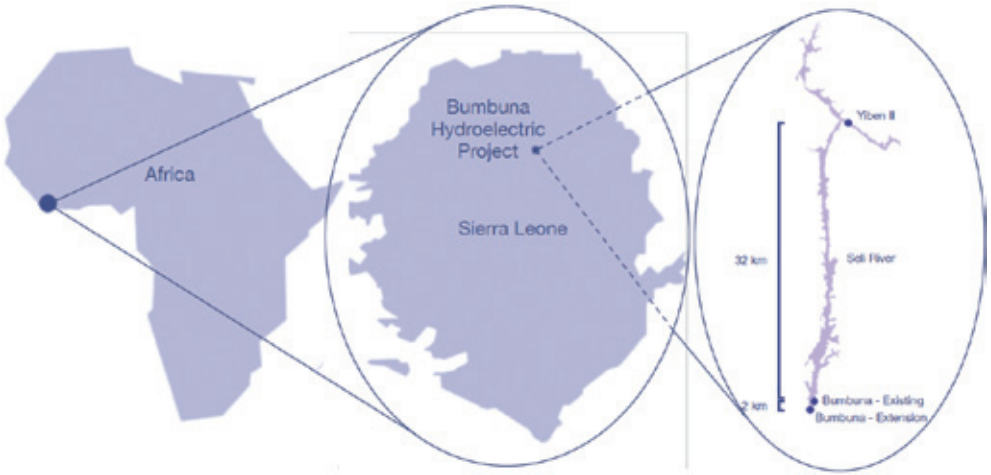
Expected results

This transmission line will help to evacuate power from the planned Methane Gas plants in Kibuye and Gisenyi through the Shango and Birembo sub-stations, to Kigali in Rwanda , which is the main load centre in Rwanda as well as to Goma in DRC, which is the biggest load centre in North Kivu Province. It will serve to connect Rwanda and DRC transmission systems, and allow for power trade between the countries, thereby increasing electricity availability and decreasing the incidents of power outages, and ultimately affording the local populations with a more secure and stable access to electricity that in turn will improve their economic and social development prospects.

Bumbuna Phase II Hydro-electric Project - Sierra Leone

Total estimated cost of the project
EUR 378 904 000

EU co-financing
TA to PIDG of EUR 2 500 000



Sierra Leone and, through energy trading, ECOWAS

Context

Bumbuna is a priority project of the West African Power Pool (WAPP) as it has the potential to provide a balancing base load through the CLSG interconnector, which is also supported by the EU-Africa Infrastructure Trust Fund. The Bumbuna Phase II Project involves upgrading the existing dam and creating another to increase the Bumbuna hydro-electric site capacity. The increase in Sierra Leone's capacity is currently anticipated to be 484% (from 52MW to 252 MW). While this will contribute to an increase in supply in Sierra Leone, a large volume will be exported using the CLSG interconnector (due for completion in 2017) to the wider West African Power Pool (WAPP).

The Project will increase the hydro-power output of Sierra Leone. This will allow greater usage by the country's individuals and businesses and will provide power with a lower negative environmental impact than alternative conventional methods.

The hydro-power station will increase the clean power output of Sierra Leone by enough that a significant portion of the expanded production will be available for export via the CLSG interconnector (due for completion in 2017), contributing to the supply in the wider WAPP, bringing benefits of increased capacity to the region as a whole.

Main activities

The TA from the EU=-Africa Infrastructure Trust Fund will finance advisors to the Government of Sierra Leone (GoSL), enabling the Government to have an informed input into the process of planning and implementation. It will fund, inter alia: financial, technical, legal, environmental and social advisors to the GoSL, and a firm with procurement and contracting expertise to assist in contracting and administering the various consultants which will assist GoSL.

Expected results

The Bumbuna upgrade will have a positive impact on the economic development of Sierra Leone by increasing the energy output capacity to a level that will allow the country to benefit from exporting via the CLSG Interconnector Project when it is completed in 2017. The Project, aided by the ITF's TA grant, will facilitate skill transfers to those local residents employed in implementation and operation stages.

Caprivi interconnector

Total estimated cost of the project
EUR 306 000 000

EU co-financing
Total EU-AITF grant amount of EUR 15m - IRS to EIB, KfW and AFD

Context

The Caprivi Link is an interconnector built between Namibia and Zambia, which links directly to the backbone of the Southern-African Power Pool (SAPP). It was constructed to increase the security of Namibia's electricity supply in response to high import dependency and an anticipated shortfall in supply, as well as contribute to market development of the SAPP by creating an additional North-South transmission route. This should encourage countries to exploit potential hydro-power capacity in the North of the region. In particular, recent hydro-power energy projects to increase generation in Zambia, such as the Itezhi-Tezhi Hydro-power Project, were made more feasible and sustainable by the improved export capability of the Caprivi Interconnector. Increases in generation capacity will contribute to stabilising supply, thus helping the region to avoid reaching the expensive 'peaking capacity' and maintain investor confidence. The transmission link's route will facilitate rural electrification in the Caprivi Strip by reducing the cost of extending the distribution network to its villages. Any NamPower (the project promoter) surpluses above those modelled will be put into a rural electrification Development Account (DA III), capping the potential benefit to NamPower and benefitting a larger population than would otherwise be possible.

Main activities

Development of a 350 kV HVDC transmission interconnection between the Namibian, Zambian and other SAPP members.

Expected results

- Improvement of security of supply in Namibia
- Providing of reliable power and access to functioning electricity markets to the customers of the northern SAPP network. On a technical level, the project provides benefits to the members of the SAPP network, in the form of reduced system faults, reduced transmission losses and reduced generation excess capacity required for reserve capacity and spinning reserve.
- Economic and social impacts through the development of rural electrification
- Energy transported: 0.40 TWh a year

The Africa-EU Renewable Energy Cooperation Programme (RECP)

Context

The Africa-EU Renewable Energy Cooperation Programme (RECP) is a multi-donor programme aiming to accelerate investments in renewable energy sector in Africa. Rooted in the Africa-EU Energy Partnership (AEEP), it creates a platform for linking private sector from Africa and Europe towards forging partnerships for joint business and project development.

It is based on the shared understanding of African and European partners that if the energy access gap in Africa is to be closed in a sustainable manner, substantial additional investment needs to be made in renewable energy technologies and public funds must increasingly leverage private resources. This requires an attractive policy and regulatory environment, and a strong local skills base, also to localise the economic and social benefits of renewable energy market development. In addition, specific support and know-how transfer is needed to enable the transition to a climate-friendly economy.
Numerous financing and other support facilities for renewable energy projects in Africa exist. the RECP as a platform that helps building a strong pipeline of bankable projects and that links projects with existing financing and support instruments will benefit project proponents as well as financiers and investors.

Main activities

A key principle of the RECP is the coherent integration into the landscape of existing European and international energy development instruments, in particular the EU financing and blending instruments.

The RECP will focus on the meso-scale segment of renewable energy projects, i.e. projects smaller than the typical utility-scale power projects. This segment holds vast potential for investment and additional energy access, and currently experiences substantial interest by market participants.

The programme will unlock private investment through an integrated approach of activities, comprising
i) Targeted support to improve policy and regulatory frameworks for private investment,
ii) Market information and match-making services for stimulating Africa-EU business partnerships,
iii) Facilitation of access to existing project preparation and financing facilities,
iv) Skills development in vocational training and higher education.
The RECP is funded with substantial contributions from Austria, the European Commission, Finland, Germany and the Netherlands. The programme is coordinated and implemented through the EU Energy Initiative – Partnership Dialogue Facility (EUEI PDF).

Expected results

During its start-up phase, initial policy advisory projects and projects focusing on project financing were implemented by the EUEI PDF and the Agence Française de Développement (AFD), respectively. The projects resulted in improved renewable energy and electricity strategies, strengthened national regulatory capacities and in thematic studies on mini-grid development, rural electrification technologies, decentralisation of energy markets and biomass energy sector planning. For more information on RECP projects, please visit the RECP website (http://africa-eu-renewables.org/).

The ultimate objective of the RECP is to trigger additional investments in renewable energy projects in Africa, and thereby contribute towards a dynamic market uptake. RECP's activities in the current phase will result in increased knowledge available on African renewable energy markets, increased interest from the European private sector in African markets, partnerships between African and European technology and service providers, and increased investment in African markets.
The RECP contributes directly to the strategic goals and objectives of both the Africa-EU Energy Partnership (AEEP) and the SE4ALL in terms of renewable energy and energy access.

Asia

Bangladesh Power Energy Efficiency

Total estimated cost of the project
EUR 7 000 000

EU co-financing
EUR 5 700 000

Context

Bangladesh is facing a chronic power shortage that undermines its economic development. Less than half of all households have access to electricity. This inadequate, irregular and poor quality of power supply has been identified as a major constraint for sustaining economic growth and development of the country. Moreover, Bangladesh is one of the most vulnerable countries to climate change due to the geography of its territory and its predominantly rural economy. Bangladesh has outlined a vision of becoming a middle-income country by 2021, which would require it to grow at 8% per year. For achieving this acceleration, Bangladesh would need to absorb its growing labour force, raise its productivity, and invest significantly in electricity generation and transmission infrastructure. Against this backdrop, the Government of Bangladesh, in collaboration with a number of IFIs, has launched an ambitious initiative called 'Bangladesh Power System Efficiency Improvement Project II.'

Main activities

This project-support and capacity building grant supports three aspects of the MFF. As part of MFF T1, the project envisages the upgrading of four power plants, three of which are owned and managed by the BPDB (Shajibazar, Baghabari, and Sylhet) and one by the NWPGC (Khulna). This project-support component will be applied to recruit consultants reporting to the client-executing agency (BPDB or NWPGC) and to the Lenders as required. The second project-support component will provide for the recruitment of consultants to support project promoter Ministry of Power, Energy and Mineral Resources in conducting the due diligence on the preparation of T2 project components. Capacity-building under the third component will provide a variety of training programs to executing agencies (EAs) under the whole MFF, namely BPDB, NWPGC, Power Grid Company of Bangladesh Limited (PGCB), Dhaka Power Distribution Company (DPDC) and Dhaka Electricity Supply Company (DESCO). Despite improvements in financial management, auditing and governance of these agencies in recent years, several limitations and weaknesses still exist and these practices need to be further improved to be on a par with international standards.

Expected results

The project is expected to increase: (1) energy sector contribution to low carbon and sustainable growth; (2) access to clean and reliable supply of electricity; (3) renewable energy use; and (4) improve efficiency in electricity, transmission as well as distribution. These results would significantly improve economic growth and development of the country.

Capacity-Building and Development of the Hydropower Sector
in Pakistan

Total estimated cost of the project
EUR 130 100 000

EU co-financing
EUR 2 500 000

Context

There are three main potential barriers to development of hydropower in Pakistan. Firstly, there is a lack of up-to-date technical competence at engineer, sub-engineer and technician level, both (i) for design of projects according to the latest standards, and (ii) for operation & maintenance of existing projects. Secondly, there is no integration of climate change-related issues in the design of the dams, for safety issues, as well as for efficiency and profitability of the projects. Thirdly, the awareness of environmental and social due diligences is insufficient. This makes it complicated to ensure that projects are in line with the best international standards, which would attract more international financing.

Main activities

AFD signed in July 2010 with the Government of Pakistan a EUR 26.5m loan agreement for (i) the realisation of the 22 MW hydropower project of Jabban, in Malakand district; and (ii) for capacity-building of Water & Power Development Authority (WAPDA). After extensive review of the options with AFD, WAPDA took the decision to use the capacity building component for fully rehabilitating the existing training centre of Mangla, and to transform it into a "centre of excellence for hydropower". This HPTI will be, upon completion, the only centre in Pakistan in charge of training and capacity-building for hydropower, both at technical and engineering levels. It will not be restricted to WAPDA's staff, but will also be opened to other public, provincial or private operators involved in hydropower in Pakistan. The idea is to provide the HPTI with a new building and to refine and improve its training offer through provision of modern equipment and capacity improvement of trainers. AFD ongoing financing is only partly covering these needs. The Planning Commission of Pakistan has already approved these investments in principle and support for the HPTI, but has requested a grant, complementing AFD's soft loan.

Expected results

The purpose of the project is to increase capacity-building of hydropower public & private operators, through the full rehabilitation of the national Hydropower Training Institute (HPTI) of Mangla, with a view to ensure sound and skilled development of hydropower projects in the country.

Efficient Transmission of Electricity
from Renewable Energy Sources in Nepal

Total estimated cost of the project
EUR 60 000 000

EU co-financing
EUR 2 250 000

Context

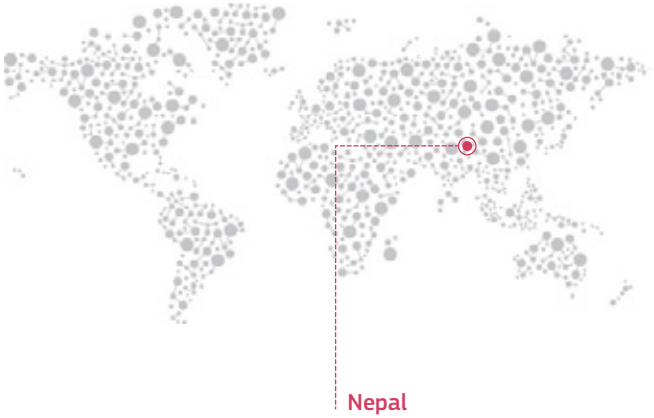
Access to electricity has been limited and unreliable in Nepal for years. The deficient access to power has had and continues to have serious negative impacts, not only on the living conditions of the Nepali population, but also on companies' production. The deficient situation in electric power supply therefore constitutes one of the principal obstacles for the prospects for economic and social development of Nepal. The general objectives of the project are to contribute to the sustainable economic and social development of Nepal and to the improvement of living conditions of the Nepali population.

Main activities

The project, co-financed by KfW and EIB, will support the construction of the transmission infrastructure needed for efficiently evacuating the electricity generated by newly constructed Hydropower Plants (HPPs) in Trishuli River Basin into the national grid (two 220/132 kV-substations, 30 km 220 kV-transmission line). The potential AIF "Neighbourhood Electrification Component" shall support the integral rural electrification of the communities in the vicinities of the financed infrastructure.

Expected results

The expected results of the project are: (1) an increase of power available and thus reduction of load shedding hours; (2) a creation of a safer and more secure transmission infrastructure; (3) protection of the global environment and resources; (4) and an improvement of living conditions, creation of growth and employment, especially for the industrial sector and SMEs.



Nepal
Trishuli River Basin

Improvement of access to electricity and water
in small towns and rural areas

Total estimated cost of the project
EUR 130 100 000

EU co-financing
EUR 2 500 000

Context

Cambodia's 2012 HDI is low and around 46% of the population lives in multidimensional poverty and most of them suffer deprivations in living conditions. Limited access to water and electricity in rural areas plays a major role in these poor rankings. The potential of expansion of water and electricity access in small towns and rural Cambodia is still large; however it is currently being held back by several factors. Firstly, the electricity transmission network still remains largely underdeveloped. Secondly, Small Enterprises are constrained by the investment required. Thirdly, there is no access to grid electricity either through EDC or REEs. Individual solar equipment is the only way for households to have an affordable and reliable access to electricity.

Main activities

The project consists of three components. (1) Under the EDC project, AFD considers providing a concessional loan of up to EUR 45m to support EDC in expanding its transmission network. The second component is a credit line project to REEs and SWEs, which are currently constrained by financial and non-financial barriers to develop their business through commercial loans. In this context, the project aims at promoting the financing of these SEs by dealing with all identified barriers for a sustainable access to commercial loans by REEs and SWEs. The third component is the Green microfinance project, which will facilitate the installation of approx 5 000 to 10 000 SHSs and up to 40 000 solar lanterns.

Expected results

The EDC project will expand the transmission network in areas where no grid access is available today, allowing for REEs to expand their business in new areas. The project would allow connecting approximately 58 000 households in the Koh Kong, Kampong Cham and Kratie provinces to the grid. The credit line project will: increase access to safe drinking water and electricity in Cambodian small towns and rural villages; develop local resources, provide local jobs and offer new income opportunities; improve the competitiveness of the local enterprises by reducing the costs of energy and water; and develop a rational assessment of the risk-taking related to water and electrification projects by the banking sector. The green microfinance project will contribute to improving the living conditions of remote rural households thanks to access to clean and sustainable sources of energy.

MIFA Biogas/Renewable Energy Fund

(MIFA = Microfinance Initiative for Asia, a joint initiative of KfW and IFC)

Total estimated cost of the project

RC: EUR 24 000 000

TA: EUR 4 000 000

EU co-financing

Risk Capital (RC): EUR 3 000 000

Technical Assistance (TA): EUR 1 000 000

Context

The use of biogas for cooking purposes reduces the need for biomass and relieves soil, forests and the atmosphere. By using the generated sludge as fertilizer, the soil can be supplied with nutrients at low cost. The target group gains more time for productive activities and households' earnings improve. Overall, the access to appropriate financing has been identified as one of the main bottlenecks in the dissemination of this technology.

Main activities

The MIFA Debt Fund was set up in June 2012 to support the microfinance sector in Asia. This fund shall be structured as a special window under the existing MIFA Debt Fund structure and shall be dedicated exclusively to supporting the microfinance sector in providing financing of domestic biogas plants. To ensure that the risk-return profile of the existing MIFA Debt Fund structure is not affected and that the existing fund does not unjustifiably profit from donor grants under the biogas project, a clear separation of both projects – MIFA Debt Fund and the biogas fund – is necessary. Therefore, it is planned that: (1) an umbrella fund, called MIFA Debt Umbrella Fund is created; and that (2) the MIFA Debt Fund subsists as a sub-fund under the MIFA Debt Umbrella Fund alongside a second sub-fund for biogas funding, called MIFA Biogas Fund. Initially, this second sub-fund shall only be explicitly capitalised by donor funds and only used to refinance investments in domestic biogas plants, thereby catering for the specific risk-return profile of these investments.

Expected results

The project objective is to improve access to finance for rural biogas plants, to increase the use of biogas for cooking purposes and/or for decentralised power supply and the use of the by-product bio slurry as fertilizer. The project contributes to develop a market-oriented sustainable biogas sector in selected Asian countries. According to the objectives of MIFA, the MIFA Debt Fund shall support commercially sustainable micro-finance institutions (MFIs) in their effort to improve the availability of appropriate micro-finance products, especially for the poor in Asia. Additional funds provided by BMZ and the EU as well as the engagement of additional European or multilateral donors, shall now explicitly be used to refinance rural biogas plants through microfinance institutions.

Khujand Energy Loss Reduction Project
(SUGD)

Total estimated cost of the project
EUR 21 000 000

EU co-financing
EUR 7 000 000

Context

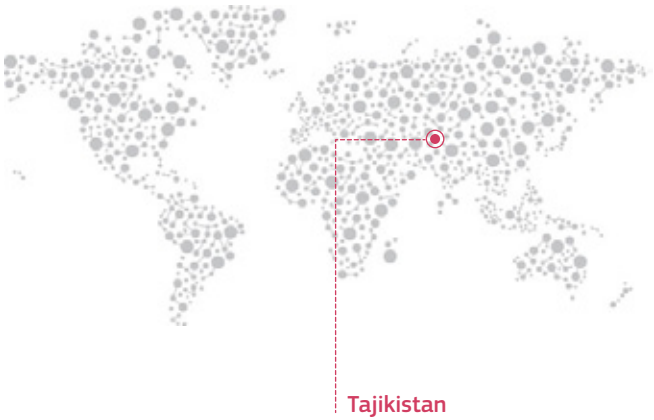
The low voltage network of Khujand and the SUGD region is operated by the local branches of the state owned power utility Barki Tojik. The entire network is in a very poor condition and requires substantial investment to ensure its safe and reliable operation. The cost and time required for network rehabilitation presently exceed the capability of the local distribution company in Khujand and surrounding municipalities.

Main activities

Barki Tojik replaces grid and retail meters, install meter-reading systems and install an auditable billing system as a key part of renewing its network. Furthermore, the project will address poor governance in the power sector by supporting a joint programme designed by the international community to improve transparency of power sector operations. In particular, the loan agreement will include conditions requiring the implementation of proper accounting standards, and timely payment by major industrial customers.

Expected results

The project enables joint European operations, combining the European Union grant funding with the EBRD and the EIB loan operations to support energy savings, energy efficiency and to enhance the overall security of the Tajik power sector. The project will mobilise investments from the EBRD (EUR 7m) and the EIB (EUR 7m) to support cooperation in the field of energy and environment with a view to support the EU strategic development objectives of sustainable economic and social development in Tajikistan and the region.



Kyrgyzstan Sustainable Energy Efficiency Financing Facility (KyrSEFF)

Total estimated cost of the project
EUR 20 800 000

EU co-financing
EUR 6 800 000

Context

Energy and carbon intensity of the Kyrgyz economy is 30% higher than the average OECD countries, due to the high rate of energy losses, obsolete condition of energy infrastructure, out-dated and inefficient equipment and a lack of monitoring and control devices. Improvement of security of energy supply and energy efficiency is identified as key principles of the Energy Strategy of the Kyrgyz Republic. An extremely high reliance on hydropower in electricity generation creates acute shortage of power supply during the winter season. Sub-projects funded under KyrSEFF will reduce Kyrgyzstan's energy import costs by encouraging the development of renewable energy sources and reducing energy consumption through implementation of energy efficiency measures.

Main activities

The Kyrgyzstan Sustainable Energy Financing Facility combines credit lines with technical assistance to help financial intermediaries support small-sized sustainable energy projects in the region. This will be the first attempt in Kyrgyzstan so far to use the Financial Intermediation model to support sustainable energy investments. KyrSEFF will extend loans in the amount of USD 20m (EUR 14m) to Participating Financial Institutions (PFIs) for on-lending to private sector borrowers for sustainable energy investments. The facility will contribute to the development of banks and MFIs who have limited experience in energy efficiency projects.

Expected results

The Facility is expected to; (1) exploit the existing potential for energy efficiency, carbon reductions and sustainable energy investments in the industrial and residential sectors of Kyrgyzstan; (2) support the efforts of the Kyrgyz government to promote energy efficiency and enhance national security of supply; (3) reinforce the implementation of recent legislation development in Kyrgyzstan; (4) provide an effective vehicle for (i) improving financial intermediaries' capacity to appraise and finance energy efficiency and small renewable energy investment projects and (ii) supporting local engineers to improve their technical expertise to identify and prepare technically feasible and cost-effective projects; and (5) provide much needed project preparation support and medium term financing to households, industries, SMEs, agribusiness and commercial services for their sustainable energy investment in this post-crisis recovery environment in Kyrgyzstan.

Kazakhstan Sustainable Energy Financing Facility

Total estimated cost of the project
EUR 30 000 000

EU co-financing
EUR 5 000 000

Context

The Kazakh economy is highly energy intensive due to the prevalence of out-dated and inefficient equipment and a lack of monitoring and control devices. Kazakhstan's energy intensity, adjusted according to purchasing power, is comparable to that of Russia or Ukraine. Investment in energy efficiency and renewable energy projects is often hampered by a variety of issues that prevent the best available solution from being implemented. Prospective investors tend to focus on their core business activities and often do not have the in-house resources to identify sustainable energy investment opportunities and prepare loan applications. Local banks are experienced in carrying out potential borrower credit analysis, but are typically unfamiliar with appraising the technical benefits of engineering/energy efficiency projects and are very wary of the perceived high risk profile of such investments.

Main activities

The overall project combines EBRD/EIB financing in the form of dedicated credit lines to potential eligible local financial institutions in Kazakhstan (the "partner banks" - PBs) for on-lending to private sector companies for investment in sustainable energy (energy efficiency and/or renewable energy (EE/RES)) projects, with EU grant support to mitigate and overcome the barriers to such investments. Preparation and screening of eligible investments will be supported by technical assistance consultants.

Expected results

The project aims to increase investments in energy efficiency and renewable energy technologies. By promoting the concept of rational energy use and mitigating high energy intensity in the country, the project will lead to reduced greenhouse gas emissions and improved competitiveness of private enterprises, supporting low carbon economic growth. The project brings together the critical technical and financial components required to facilitate and/or add value to sustainable energy investment opportunities in Kazakhstan.

Caribbean

Support to the development of Geothermal Energy

Total estimated cost of the project
EUR 8 500 000

EU co-financing
EUR 2 000 000

Context

Dominica is a small volcanic island with a population of 75 000 inhabitants. Most of its electricity is based on imported fossil fuels, whose demand is steadily increasing. Electricity cost is one of the highest in the world and is a major hindrance to development as it impacts negatively both consumers and businesses. Dominica has an important geothermal power production potential. In this light, several zones are worth exploring. The Wotten Waven area in the southern part of the island presents the best potential. This raises the possibility to export clean and competitive power to the neighbouring islands of Guadeloupe and Martinique.

Main activities

The project will support the Government of Dominica in developing the use of the country's geothermal endowment through concessioning of the Wotten Waven reservoir to the benefit of the country and the neighbouring French Caribbean islands, Guadeloupe and Martinique. It will enable the construction of two geothermal power plants and the interconnection between the islands. This project is a transition between the geothermal exploration drilling which resulted in the confirmation of the high potential for geothermal power and the production development phase, which will witness the concessionning of the resource for Small and Large Power Plants. As a result, the project will have two components: to complete the first drilling phase; and to provide technical, legal and financial assistance to the government of Dominica for the Wotten Waven reservoir concessioning as well as the initial investment supervision.

Expected results

The power plants will have a very large impact on all stakeholders, as it will significantly decrease the production cost for both domestic and French markets. It will also make the three islands less dependent on fossil fuels. In the short term, the drilling of the first production will allow to substantially quicken the start of the production for local demand. It will also remove all technical risks for the investor. In the long-term, it will bring some employment in an area where it is dearly needed. Moreover, the project will implement and secure the legal framework while building up the capacity of the government in dealing with such a large project. Skills and knowledge of the government staff will increase so that Dominican authorities will be prepared for the daily management of the whole geothermal sector.

Latin America

Power Utility Upgrade Program

Total estimated cost of the project
EUR 38 750 000

EU co-financing
EUR 19 375 000

Context

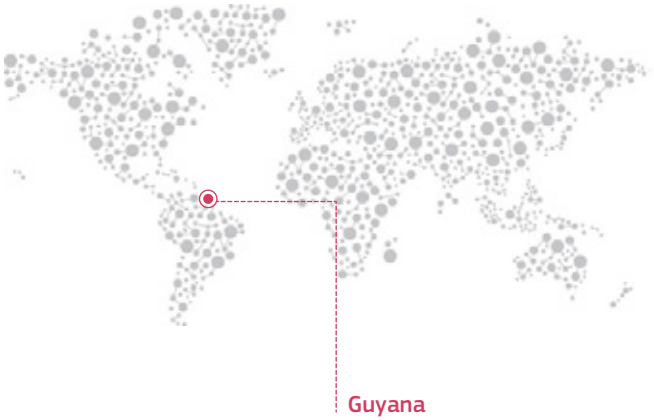
Guyana Power and Light, Inc. (GPL) is a state-owned utility whose operations comprise generation, transmission and distribution. GPL supplies electricity to nearly 167 000 customers in the coastal communities, serving a relatively small urban and suburban area, where more than 80 percent (%) of the population resides. Key operational results and indicators show critical weaknesses in GPL's operations and electricity; technical and commercial losses are high. Quality of service is low, partly due to an aged, weak and overloaded transmission and distribution network. These factors, together with low technical and executing capacities of GPL and high costs of generation and suppressed tariffs, contribute to poor financial results and constrain capital expenditures, among other undesired consequences.

Main activities

The Project aims to improve the safety and reliability of the Guyana Power and Light, Inc. (GPL) electricity distribution system strengthening its operational efficiency and corporate performance, in order to prepare the organisation to supply electricity in a sustainable manner over the long-term. The Project will finance: (a) the rehabilitation of the existing distribution network and associated equipment as part of a strategic loss reduction program; and (b) a strong Corporate Development Program (CDP) to strengthen GPL, in order to enhance its corporate capacities and achieve a set of performance targets. The Project will support the implementation of a CDP centered on specific areas, such as: (i) management and administration; (ii) system planning and design; (iii) information technology; (iv) infrastructure requirements; and (v) commercial operations; as well as on investments consistent with GPL's D&E to improve strategic infrastructure to allow for loss reduction.

Expected results

The objective of the Project is to enhance GPL's operational efficiency and corporate performance, in order to prepare the organisation to supply electricity in a sustainable manner over the long-term. The execution of the Project will help GPL to improve corporate performance in key business areas, such as planning, procurement, operation, maintenance, billing and financial management, among others. To this extent, the Project will support: (i) outsourced support to senior management to upgrade skills and implement best practices; (ii) a CDP to upgrade key areas of GPL; and (iii) approximately 40% of the distribution network rehabilitated. It is expected that the improvement of GPL´s performance will benefit its customer base of 167 000.



Chilean Solar Energy Programme

Total estimated cost of the project
EUR 342 700 000

EU co-financing
EUR 15 000 000

Context

Chile is highly dependent on two power sources, hydro-power and fossil fuel. Chile has very limited domestic fossil fuel sources and is therefore highly dependent on imported fuels. This dependence on imported fuels, and the concomitant exposure to fossil fuel price volatility, represents a significant risk for the Chilean economy. Furthermore, periodical droughts have also reduced the reliability of hydro-power production causing supply shortfalls and blackouts. The diversification of power sources through solar energy will therefore contribute significantly to the energy security of Chile.

Main activities

The Chilean Solar Energy Program is a joint initiative of the Chilean Ministry of Energy, the German development institutions KfW and GIZ on behalf of the German government, the Inter-American Development Bank and the Clean Technology Fund (CTF). The aim of the program is to foster the development of solar CSP as well as large-scale PV projects in Chile, which will reduce the country's dependence on imported fossil-fuel for electricity generation. One specific component of the program is to enable the construction of the first CSP power plant in South America with a targeted capacity of at least 50MW. The estimated investment cost range between US$ 400 and 600 Mio. The LAIF investment grant will support this specific component.

Expected results

The expected result of the program is the successful construction, implementation and operation of a reliable and dispatchable CSP power plant in Chile. As the first solar CSP project in the country with a PPA accepted by an off - taker, for instance a mining company and financial industry, it will set an invaluable precedent to be built upon for future similar projects. The potential off-takers for solar CSP projects will be reassured by the construction and operation of this plant and will be able to measure its performance vis-à-vis their electricity requirements. This lowering of risk perceptions by financiers and off-takers will facilitate and cheapen the financing of similar projects in the future. Therefore, a further expected result of the program is the successful scaling-up of the CSP industry in Chile as well as in the region.

Extension of the existing hydro-power plant “5 de Noviembre”
in El Salvador

Total estimated cost of the project
EUR 122 000 000

EU co-financing
EUR 6 000 000

Context

The Salvadorian electricity sector has been deregulated since 1996 and it is supervised by the autonomous Superintendencia General de Electricidad y Telecomunicaciones (SIGET). CEL – the 100% state owned financing partner – is the biggest producer of electricity in the country with a share of 34%. Further capacities are provided by the parastatal geothermal energy company LaGeo (15%) and several private operators of thermal power plants (51%, predominantly oil and gas). Producers sell their electricity at the national electricity stock exchange and through long-term contracts to the distributors. CEL has received financing for investment projects in the past from different international institutions (e.g. IDB, CABEI, and JBIC) and has a professional reputation in the region. In the unbundled electricity market in El Salvador, CEL only produces electricity and sells it to the independent transmission and distribution companies.

Main activities

In conjunction with the co-financing presented by the KfW and the CABEI, the LAIF grant would contribute to the amplification of the existing hydro-power plant “5 de Noviembre” from 99 MW to 180 MW. The main components of the project are the construction of a second turbine facility using the existing dam and reservoir, a new access channel to the reservoir, a new water intake and four pipelines. The additional turbine facility above-ground will contain two turbines, two generators and two transformers. Furthermore, a limited number of new access roads are planned. As a result, an additional 150 GWh p.a. of clean electricity from renewable energies would be produced in El Salvador. Since El Salvador has to import all fossil resources, an increase of electricity generated by renewable resources in the country leads to a higher energy security and economic independence of the country. Therefore, this project promotes long-term development and the whole population of El Salvador is benefiting from it.

Expected results

The objectives and expected results are to: (1) satisfy the continuously growing electricity demand of the population (approx. 5% p.a. in the next few years) through the extension of electricity generation from renewable energies; (2) contribute significantly to climate and environmental protection by saving approximately 92 000t CO_2 per year; and (3) to enhance resource efficiency by increasing the capacity of the existing plant to make use of all water resources currently available.

Improving service delivery and investment planning in the power sector

Total estimated cost of the project
EUR 170 000 000

EU co-financing
EUR 1 500 000

Context

Brazil is the 10th largest energy consumer worldwide, and the largest in South America. In a global panorama dominated by fossil fuel, Brazil presents remarkably high shares of renewable energies: 47% of the energy mix (with main contribution of sugar cane and hydro-power); and 72% of the power generation installed capacity. Brazil must move towards a less energy intensive economy in the context of its overall objectives of reducing GHG emissions, access to energy as well as forthcoming global events, such as FIFA World Cup and the Olympics. It thus needs a more efficient and more reliable power distribution system. This is consistent with the EU's strategic partnership with Brazil, which underlines the importance of climate change.

Main activities

The project intends on one hand to reinforce and modernize CEEE-D's high and medium voltage network in order to provide a safe and reliable power distribution service, and on the other hand to improve financial planning, network and commercial management through the upgrade of CEEE-D's integrated information and financial systems. The project consists of 6 components: (1) investments in the high voltage power distribution system; (2) renewal of high voltage distribution equipment, modernisation of the control system; (3) upgrade of information and control system; (4) technical assistance (TA) for the implementation of ERP and CMS; (5) technical assistance to enhance financial steering of investment; and (6) design, management and monitoring of the program.

Expected results

The general objective of the project is to increase the quality, reliability and efficiency of the power distribution service to the population and customers served by CEEE-D, as monitored by the Regulator through the indicators of interruption duration and frequency, as well as technical and non-technical losses. There is a need to improve the management of CEEE-D through modernization of its information and control systems.

Sustainable Electrification and Renewable Energy National Program (PNESER)

Total estimated cost of the project
EUR 308 800 000

EU co-financing
EUR 7 000 000

Context

Nicaragua is the country in Latin America and the Caribbean with the second to lowest income level, and with poor electricity service coverage in the region, which constitutes a significant barrier for socioeconomic development. The electrification rate is far from the Central American goal of reaching 90% coverage by 2020. The low coverage means that approximately 310 000 households do not have access to electricity. In addition, approximately 132 000 households are located in settlements that in most cases have low quality, unsafe, interrupted and/or illegal access to electricity. The absence of timely investments in the energy sector has led to a high dependency on fossil fuels for electricity generation. In 2008, 65% of electricity generation was fossil fuel based, in spite of being a country that possesses a large untapped renewable energy potential. Currently, Nicaragua has a significant renewable energy potential such as geothermal, hydro-electric and wind energy potential. However, the high starting investment costs are a significant barrier for their development and the involvement of private investors. In this context, the objective of the PNESER is to support the efforts of the Nicaraguan government to reduce poverty by promoting access to an efficient and sustainable electricity service to a large portion of the population

Main activities

The project consists of 7 components: (1) rural electrification through grid extension; (2) normalisation of electricity service in human settlements; (3) electricity expansion in isolated areas through renewable energy; (4) pre-investment studies for renewable energy projects; (5) energy efficiency programs; (6) strengthening of the transmission system in rural areas and connecting renewable generation; and (7) sustainability of isolated systems under ENEL's responsibility.

Expected results

The project is expected to improve general energy infrastructure, particularly in terms of safety and security; efficiency and energy savings; and production and use of renewable energy. Moreover, the project will increase protection of the environment by promoting low-carbon and cleaner production, including innovative and environmentally-friendly technologies; as well as promoting climate change adaptation technologies, including necessary related infrastructure.

Yacyretá transmission line, loss reduction and access to energy project

Total estimated cost of the project
EUR 200 700 000

EU co-financing
EUR 10 000 000

Context

One of the main problems of Paraguay's power sector is the weak transmission capacity from source of generation to consumption centres. There are transmission system overloads and there is a need to meet the strong demand growth. To attend to this growing demand, the transmission network requires important investments in order to increase reliability of supply and avoid overloads. As the transmission system in the country is not integrated, two electrically separate subsystems, one from Itaipú to Asunción and the other one from Yacyretá up to Guarambaré substation, near Asunción are operating. There is a lack of synchronization between the Paraguayan and Yacyretá system, which limits the optimal use of the system and decreases its reliability and safety. One of the main challenges for the sector is the very high level of energy losses. The overall objective of the project is to improve the competitiveness of the productive sector and the standard of living of the population of Paraguay through increased security of supply and efficient use of available renewable electricity generation and access to affordable electricity supply to the lowest income segment of the population.

Main activities

The project has two main components: (1) the construction of a 500kV and 300 km high voltage transmission line linking Yacyretá hydro-power plant and the capital Asunción and (2) an energy loss reduction programme that comprises the roll out of 625 000 electronic meters which will contribute to reducing power losses from current 30% to 24% by 2017, out of which 350 000 are requested to be financed through the LAIF and targeted at new connections in informal settlements, as well as beneficiaries of the social tariff and low income residential consumers.

Expected results

The transmission line component expects to increase the energy transported from Yacyretá towards Asunción region, as well as reduce non-supplied energy due to increased supply reliability, synchronisation of the two sub-transmission systems and reduction in transmission losses. The energy loss reduction component will reduce non-technical energy losses and connection of the population living in informal settlements to the electricity grid.

A joint effort,
Global Energy Efficiency and Renewable Energy Fund

Overview

The Global Energy Efficiency and Renewable Energy Fund – GEEREF – is an innovative Fund-of-Funds catalysing private sector capital into clean energy projects in developing countries and economies in transition.

Successfully nominated as one of the top six 2014 priority forms for providing new finance for clean energy at the Bloomberg New Energy Finance Summit in New York, in April 2014, GEEREF provides global risk capital through private investment for energy efficiency and renewable energy projects.

GEEREF has a triple objective:

1. to provide access to renewable energy to people and increase energy efficiency in developing countries and economies in transition.
2. Fight climate change and contribute to a sustainable environment
3. Provide a risk-adjusted return to investors.

Funding and Investors

GEEREF is structured as a public private partnership to catalyse private sector investments into funds and underlying projects by leveraging the public sector seed contributions:

Initiated by the European Commission in 2006 and launched in 2008 with funding from the European Union, Germany and Norway, GEREEF is totalling EUR 112m. It is currently seeking a similar amount of private capital from private sector investors, to bring the total funds under management above EUR 20m. The first private capital commitments were signed at the end of 2013 and fund-raising efforts are ongoing.

It is estimated that, with EUR 200m of funds under management, up to EUR 9.5 billion of capital could be invested through the funds in which GEEREF participates and the final projects in which these funds invest.

GEEREF – A Tool for Development

GEEREF is set up as an innovative global risk capital fund that will use limited public money to mobilise private investment in small-scale energy efficiency and renewable energy projects. It is both a development tool and a contribution to global efforts to fight climate change. The opportunity for renewable energy investing in developing economies is driven by three principal factors:

1. population and economic growth;
2. energy demand growth; and
3. a growing share of clean power in the energy mix.

Thus, not only should investments bring almost 1 gigawatt of clean energy capacity to recipient countries, providing sustainable energy services to 3 million people and saving up to 2 million tonnes of carbon dioxide emissions, they will also enable the transfer of technologies in targeted regions. This makes GEEREF an innovative and ground-breaking financial instrument for sustainable development.

GEEREF Portfolio

Through its investments in Private Equity funds, GEEREF finances a broad mix of energy efficiency and renewable energy projects and technologies, such as small hydro-power, biomass, wind farms as well as solar power technologies. Advised by the European Investment Bank Group, GEEREF invests in markets with appropriate regulatory frameworks for clean energy investment, where high quality renewable energy resources and steadily reducing technology costs present compelling opportunities. In many markets, clean energy projects deliver strong returns at a lower cost than conventional energy sources.

There are currently six funds in the GEEREF portfolio, across Asia, Africa, Latin America, Central America and the Caribbean:

Fund	Regional Focus	GEEREF Commitment
Renewable Energy Asia Fund (REAF)	South and South East Asia	EUR 12.5mn
Evolution One Fund	Southern African Development Community	EUR 10m
Emerging Energy Latin America Fund II	Latin America	EUR 12.5mn
MGM Sustainable Energy Fund	Colombia, Mexico, Central America and the Caribbean	EUR 10m
DI Frontier Markets	Sub-Saharan Africa	EUR 10m
Armstrong South East Asia Clean Energy Fund	Southeast Asia	EUR 10m

HOW TO OBTAIN EU PUBLICATIONS

Free publications:

- one copy:
  via EU Bookshop (http://bookshop.europa.eu);
- more than one copy or posters/maps: from the European Union's representations (http://ec.europa.eu/represent_en.htm); from the delegations in non-EU countries (http://eeas.europa.eu/delegations/index_en.htm); by contacting the Europe Direct service (http://europa.eu/europedirect/index_en.htm) or calling 00 800 6 7 8 9 10 11 (freephone number from anywhere in the EU) (*).

  (*) The information given is free, as are most calls (though some operators, phone boxes or hotels may charge you).

Priced publications:

- via EU Bookshop (http://bookshop.europa.eu).

Priced subscriptions:

- via one of the sales agents of the Publications Office of the European Union (http://publications.europa.eu/others/agents/index_en.htm).

MN-01-15-341-EN-C

– http://ec.europa.eu/europeaid/sectors/energy_en

Publications Office

ISBN: 978-92-79-47821-5
doi: 10.2841/452935