



Empowering Development

Delivering results in the Decade
of Sustainable Energy for All



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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/elibrary/se4all>

Powering sustainable growth and development

Andris Piebalgs,
EU Commissioner for Development

Powering sustainable growth and development

Andris Piebalgs, EU Commissioner for Development

Energy is fundamental to development. Developing countries over the world need energy to support their growth. They need it to ensure access to clean water, clean cooking, education and healthcare to their people. They need it to power their agricultural sectors, to create jobs and to support local businesses. In other words, they need sustainable energy to power their sustainable development.

In Europe we have made sustainable energy an increasingly high priority in our development cooperation. Through our Agenda for Change we will increase the impact of our development resources, targeting them where they can bring real added value, so that people can move out of poverty. The Agenda for Change pinpoints energy as a key driver for inclusive and sustainable growth.

And this is why we strongly support the Sustainable Energy for All (SE4ALL) objectives. At the EU SE4ALL Summit in Brussels in 2012, President Barroso set the ambitious target of helping partner countries provide EUR 500 million people with access to sustainable energy services by 2030.

Since then we took immediate actions. More than EUR 600 million worth of grants were mobilised over the past two years (2011-2013) for specific actions that fuel growth and improve livelihoods in our partner countries at different levels.

- An enabling environment that allows for growth and private investments is crucial for meeting the increasing energy demand of our partner countries. A Technical Assistance Facility to help in fine-tuning policies is already fully operational in Sub-Saharan African countries and will be replicated in other regions.

- The EU support to energy infrastructure projects is reinforced through our blending instruments and other innovative finance mechanisms, such as the Global Energy Efficiency and Renewable Energy Fund. GEEREF has been 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 December 2013. By blending grants with loans, we expect to leverage concrete investments of up to EUR 8 billion.

- And of course we haven't left behind rural communities. The challenge of providing access to sustainable energy services to rural areas is being addressed through our Calls for Proposals and, in future, through tailored instruments that could leverage more private investments and deliver thus more benefits to those in need.

This is just the beginning. Over the next 7 years the EU aims to allocate more than EUR 3 billion worth of grants in supporting sustainable energy, in particular in the 30 partner countries that have chosen energy as a focal sector in their cooperation with the EU. This will leverage investments between EUR 15 and 30 billion in loans and equity investment, thus enabling to plug the gaps in energy infrastructure and power businesses, schools, homes and hospitals.

In this way, the EU is catalysing action in support for energy reforms, providing more opportunities for energy investments and delivering results in the Decade of SE4ALL.



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EU actions and tools in our energy cooperation

Fernando Frutuoso de Melo,

Director General of Development and Cooperation
EuropeAid

EU actions and tools in our energy cooperation

Fernando Frutuoso de Melo, Director General of Development and Cooperation EuropeAid



Energy – crucial for development

Addressing the lack of access to clean, reliable and affordable energy services for billions of people has become one of the most critical development challenges, our prominent matter on the international aid agenda of fight against poverty.

Worldwide, about 1.2 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. A well-performing energy system that improves efficient access to modern forms of energy would 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, creating new job opportunities and contributing to poverty eradication while moving towards low-carbon and resource-efficient energy models.

For already a decade the fight against energy poverty has been a driver of our development agenda. In 2004 we created the EU Energy Initiative as a collaborative platform between the European Commission and its Member States in order to join forces in the fight against energy poverty. In 2007 we made it one of the cornerstones of our Joint EU-Africa Partnership and integrated energy issues in our programming. In the last programming cycle (2007-2013), the Commission contributed more than €2 billion to energy, of which a large part was dedicated to the African continent.

Following our Agenda for Change and the strong commitment to support the goals of the Sustainable Energy for All initiative, the EU developed a comprehensive set of actions and rolled out more than €600 million - over the last two years alone to end energy poverty. Now we are stepping up efforts and this work will be further reinforced together with about 30 countries that have chosen energy as a focal sector for their bilateral cooperation with the EU in the next multi-annual financial framework (2014-2020), in our regional and multilateral dialogues with international partners.

Challenges are numerous. Developing energy markets still face many barriers to sustainable energy services. 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 grid.

This is why we are adopting a comprehensive and long term approach. We are creating an enabling environment to allow for transparency, policy and regulatory reforms, cost-recovery and reinvestment. At the same time we catalyse investments

through innovative financing schemes that use EU grants and loans in a strategic way to make large energy infrastructure projects bankable, through our blending instruments. Change will happen only through bilateral and multilateral dialogue and a strong regional cooperation with partner countries.

This approach is being rolled out by the EU, along with its Member States and international partners and the relentless efforts of our people in Delegations across the globe, working together to transform the goals into 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 so far, the results achieved to date and provides an insight on how we intend to tackle the energy conundrum in the coming years.

I wish you a pleasant reading!

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

Empowering rural communities

Call for Proposals on Rural Electrification



hydro



solar



biomass



Empowering rural communities Call for Proposals on Rural Electrification

“...through the Call for Proposals on rural electrification, tangible results are being delivered and the EU is scaling up projects which have proven successful with a significant impact on poverty reduction through sustainable rural electrification.”

Commissioner
Andris Piebalgs

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 Proposals¹ addressing energy poverty in rural areas through scaling-up successful actions which have proven to have a significant impact on poverty reduction.

Its specific objective is 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 is given to innovative characteristics of the projects, 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 countries² and requesting more than EUR 825m 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 55m to a total of EUR 95m.

As a result 16 projects were selected for EU funding, and present high poverty reduction impacts for more than 2 million direct beneficiaries, and several more indirectly benefiting through the electrification of social and productive infrastructures. All these actions correspond to a total budget of approximately EUR 160m (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. An outline of the successful projects is presented in the following pages.

This list of projects and beneficiaries from the Call for Proposals could increase further. Given that the Commission alone cannot co-finance all the quality project proposals received under this Call, several more projects are made available³ for possible funding from private and public donors and development agencies.

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.
3. See <http://ec.europa.eu/europeaid/elibrary/se4all>



Energy technology used in the project

Connection type: grid connected

Total capacity to be installed: 1 700 kW

Total energy production: 9 000 MWh/year

Estimated energy production investment cost: 2 100 €/kW installed

Estimated cost of energy produced: 0.080 €/kWh (average 25 years)

Total estimated cost of the project

EUR 7 568 677

Total EU co-financing requested

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.

Hydro-electric Energy for 20 isolated villages in the Ludewa District, Tanzania



maintenance and the depreciation of the facility and to support social services and economic development.

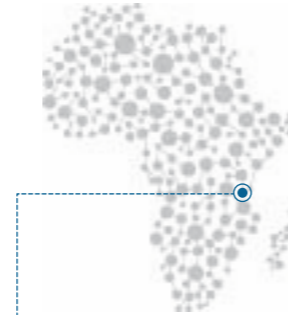
By the end of the project, the plant will be handed over to an Energy Users Entity, whose owners will be the Hospital of Lugarawa and the 20 served villages.

Main activities

- Construction of a hydropower plant and rehabilitation of existing plant;
- 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;
- 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

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



Mwenga Hydro Rural Network Extension into the Kihansi Basin

Energy technology used in the project

Connection type: 200 km electricity network grid (High Voltage and Low Voltage)

Total estimated cost of the project

EUR 5 800 000

Total EU co-financing requested

EUR 4 300 000

Direct beneficiaries

- 3 000 households
- roughly 39 000 rural inhabitants

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.

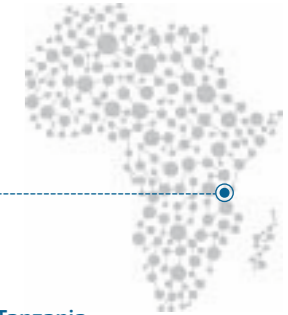
The project will use a state of the art, cell-phone based, pre-paid metering electricity vending system, which makes it easy and convenient for both the rural customer and the distributor to directly buy/sell electricity.

Main activities

- Develop full Environmental Impact Assessment (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



Tanzania
Kihansi Basin, Mufindi in the Iringa Region

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.

Rift Valley Energy / Mwenga Hydro Ltd.

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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

Connection type: network grid and electrical connection
Estimated cost of the energy produced: 0.076 €/kWh

Total estimated cost of the project

EUR 7 087 413

Total EU co-financing requested

EUR 5 244 686

Direct beneficiaries

- 67 690 village residents
- 9 670 households

Context

Energy poverty in Cameroon is defined as a lack of access to reliable, efficient, sustainable and continuous energy services. Rural electrification is in an embryonic state in the Far North Region in particular.

The specific goal of the project is to link and connect 16 villages in rural and peri-urban areas of 10 municipalities of the Far North Region located not far from the networks created by the Lagdo hydroelectric plant. Another goal is to provide service via the electricity networks built by ensuring that households and public and private services value the system installed and make it sustainable.

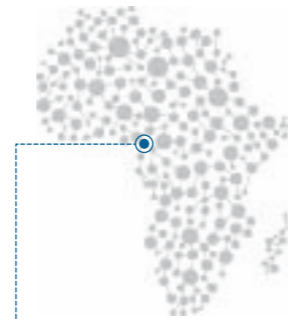
The project, which is part of the Plan d'Action National Energie pour la Réduction de la Pauvreté (PANERP), fits with the government's rural electrification priorities.

Main activities

- Execution of the connection work for the 16 target villages after informing, raising awareness and mobilising local players;
- Follow-up, monitoring and evaluation of the connection work;
- Implementation of operations prior to connection;
- The 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

- All 16 villages linked and connected;
- A significant share of households and public and private services in the villages use electrical energy thanks to the education and awareness-raising of target groups and the implementation of operations prior to connection;
- Households use electrical energy to improve their living standards (income, housing, safety, etc.) thanks to the improved organisational capacities of the target groups.



Cameroon

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

Mission de Développement Intégré des Monts Mandara (MIDIMA)

Tchari BOULAMA
General Manager
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JIRO KANTO

Energy technology used in the project

Connection type: mini-grid

Total capacity to be installed: 2.2 MW, including Medium Voltage and Low Voltage grid covering 12 separate areas

Total energy production: 13 771 000 kWh/year



Madagascar
Lac Alaotra region

Total estimated cost of the project

EUR 5 343 015

Total EU co-financing requested

EUR 4 007 261

Direct beneficiaries

2 500 households

Context

The JIRO KANTO project covers 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 produce 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);

- 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 2 500 households electrified by this project, increasing the electricity access rate to 8.5% (from the current 1.5%).

BETC Nanala

Paul RAKOTONDRALAMBO
Email:
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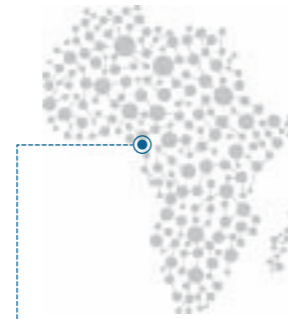




VER Plan: Decentralised Electricity Production and Utilisation of Rural Electrification for Agriculture and Rural Development in Cameroon

Energy technology used in the project

Connection type: off-grid
Technology: hydro and mini-grid
Total capacity to be installed: 1.66 MW



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 will have associated networks that will contribute to providing more 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. The lever effect will 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;
- A more dynamic 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 started up with energy injection into the national grid;
- GTMN operating consistently;
- 20 projects studied in detail with business plans for their operation;
- The VER Plan implemented in the areas in question and able to be duplicated throughout the country.

Agence d'Électrification Rurale

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



Total estimated cost of the project

EUR 16 000 000

Total EU co-financing requested

EUR 7 992 061

Direct beneficiaries

235 000 inhabitants in 47 000 households

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

Energy technology used in the project

Connection type: individual kits and connection to the national electricity grid
Total capacity to be installed:
 7 PV power plants totalling 2 500 kW and 4 000 PV kits (120 kW)
Estimated energy production: 4 286 MWh/year



Context

The overall objective of the project is to achieve the Millennium Development Goals for poverty reduction and the objectives of the World Summit on Sustainable Development.

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 specific objectives are:

- Universal access (electricity service adapted to low purchasing power) for all inhabitants of two rural areas with a total of 100 000 residents;
- Increased renewable energy with photovoltaic generators producing 2.62 MW. This will make it possible to significantly reduce the energy consumption of SONABEL's primary customer, ONEA, and free up energy for rural areas;
- Cooperative implementation of electricity efficiency measures (streamlined use, tariffs reflective of costs, educational pro-

Total estimated cost of the project

EUR 12 320 930

Total EU co-financing requested

EUR 7 927 350

Direct beneficiaries

100 000 residents (16 500 households, schools, health centres, government offices, businesses) in 63 villages (33 villages around Kibilo and 30 villages around Pissila)

grammes) and emphasis on the environmental value of the electrification model to implement other actions such as the managed mobilization of biomass, and the creation of two eco-zones.

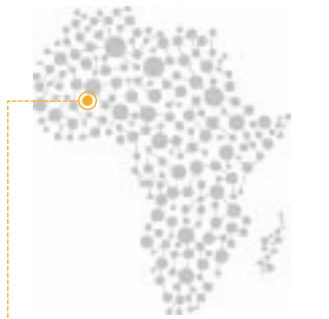
Main activities

A commercial action based on the complete addressing of 16 500 infrastructures, businesses and households (100 000 inhabitants) over 830 km² (satellite SIG).

- Technical-financial and tariff analysis of the service model and Detailed Pre-Project/Call for Tender file for the implementation of MT/BT networks, of 12 500 business connections, of 7 PV plants and of 4 000 PV kits;
- Initial operation of power plants, networks and kits, including the permanent capacity of new connections and evolution of the systems - collective interest cooperative management 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 100 000 residents);
- Deployment of 7 PV plants totalling 2 500 kW and 4 000 PV kits (120 kW) with production of 4 286 MWh PV/year, of which 95% at a cost lower than network energy, that is, 21.6 kWh solar/month/household;
- Social control of heating wood consumption and design of an environmental action plan with local players.



Burkina Faso

The provinces of Yatenga, Zoundoma (North Region) and Sanmatenga (Centre-North Region)

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Energy technology used in the project

Connection type: off-grid;
Technology: PV solar
 • Small household level solar kits of a 30 Wp solar PV panel, a light, a mobile phone charging kit and a battery
 • Large solar PV systems with battery banks of 8-1000Ah for businesses and social institutions
Total capacity to be installed: 560 kW
Total energy production: 993 165 kWh/year
Estimated cost of energy produced: €5.78/kWh

Total estimated costs of the project

5 737 538 €
Total EU co-financing requested
 4 286 249 €

Direct beneficiaries

The direct beneficiaries will be the Ugandan rural population:
 • 60 000 individuals (15 000 households);
 • 40 rural youth and women (local entrepreneurs);
 • 20 CBOs;
 • 100 small businesses;
 • 50 rural social institutions;
 • Ministry of Energy and Mineral Development (MEMD);
 • Rural Electrification Agency (REA);
 • Solar PV suppliers.

Scaling-up Rural Electrification

Using Innovative Solar Photovoltaic Distribution Models



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 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.

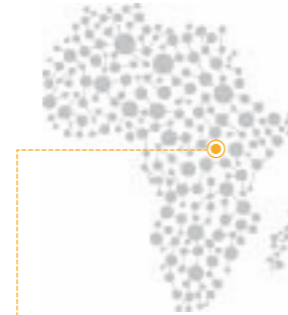
Therefore the overall objective of the project is that, "by 2025, rural livelihoods are improved and greenhouse gas emissions are reduced through widespread access to clean and renewable sources of energy in Uganda." Through this initiative, rural communities in Kasese are expected to adopt solar technology as a source of energy for domestic use, social institutional use (schools and health clinics) and for productive. 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;
- 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.



Uganda
Kasese District.

WWF

Dr. Timothy GEER
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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

Connection type: off-grid



Total estimated cost of the project

EUR 5 400 000

Total EU co-financing requested

EUR 4 050 000

Direct beneficiaries

The project targets: 137 328 direct beneficiaries

Other beneficiaries include: 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 planting trees and promoting energy efficient cookstoves. The project will also provide increased access and use of solar power technology for households and schools.

The overall objective is to contribute to sustainable energy security in rural communities in northern Uganda for social and economic development.

The specific objectives are:

- Increased reforestation and sustainable management of bio-energy resources to increase the supply. Trees are Northern Uganda's most vital energy source. Trees for fuel and timber will be planted alongside fruit trees, which both improve nutrition at a household level and provide income through the sale of surplus;
- Increased sustainable production and use of energy-efficient cooking technologies among rural communities: this will 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;
- Increased access and use of solar power technology for

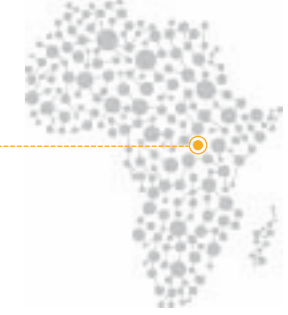
households and schools: this introduces an alternative energy source, which has become increasingly accessible and affordable with technological developments.

Main activities

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

Expected results

- Increased reforestation of 2 555 Ha of land and sustainable management of bio-energy resources;
- 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 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.



Uganda
Kitgum, Lamwo, Agago and Pader Districts

Church of Sweden

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Website: www.svenskakyrkan.se
Co-applicants: Lutheran World Federation





Micro Power Economy

Tanzania Roll out

Energy technology used in the project

Technology: solar PV-diesel-battery hybrid power stations in mini-grids (230/400 V AC distribution grids partly with Medium Voltage backbones)

Total capacity to be installed: 2.12 MWP of solar PV

Estimated cost of energy produced: 0.62 €/kWh



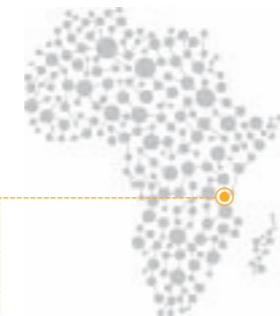
- A tariff and billing model, offering the reliability of planning for all stakeholders through the “electricity block trading system”;
- Micro Power Smart Meters which stabilise the grid and facilitate smooth pre-paid electricity block trading. With the modular and extendable power generation concept 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.

Expected results

More than 81 000 people living in rural Tanzania will get access to reliable 24/7 electricity from mainly renewable sources in mini-grids.



Tanzania
The Mwanza, Tabora and Shinyanga regions

INENSUS GmbH

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



Total estimated cost of the project

EUR 16 000 000

Total EU co-financing requested

EUR 7 400 000

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;

Direct beneficiaries

16 villages with a total of more than 81 000 people

Pre-paid Energy

Rent-to-Own Solar Home Systems

Energy technology used in the project

Connection type: off-grid

Technology: Solar Home Systems (SHS) and hybrid

Total capacity to be installed: equal to 4.9MW- installed capacity in households and 3MW in schools



Total estimated cost of the project

EUR 22 184 616

Total EU co-financing requested

EUR 6 000 000

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

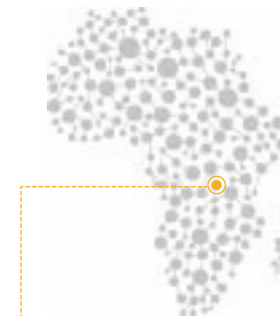
- Set up of a sales and distribution infrastructure to serve customers' demand;



- 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.

Expected results

- The replacement of fossil fuels with a renewable resource, solar energy, leading to an immediate reduction in CO₂;
- The Mobisol SHS combining mobile “pay as you use” feature ensures that systems are effectively paid off and enables the rural poor to own a PV system;
- Profits can be increased 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

Energy Water and Sanitation Authority (EWSA)

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Co-applicant: Mobisol GmbH – CEO Thomas Gottschalk





Energy technology used in the project

Connection type: stand-alone off grid

Technology: photovoltaic and AC mini grids

Total capacity to be installed: 800 kWp

Total energy production: 1 474 400 kWh/year

Estimated cost of energy produced: 0.20 €/kWh (without electric grid), 0.40 €/kWh (including electric grid)

Storage: use of high quality batteries

Energy efficiency measures: use of energy efficient LED/ CFL lights, use of A+ home appliances, and energy dispensers

Total estimated cost of the project

EUR 8 565 104

Total EU co-financing requested

EUR 6 423 828

Direct beneficiaries

- 90 000 beneficiaries in 20 villages, including: 150 micro entrepreneurs
- 100 community services.
- 365 rural consultancy organisations

DPER-South East Senegal

Sustainable Development and Peace for Renewable Energies



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.

Specific objectives:

- Scaling up of rural electrification projects far from the public grid;
- Encouraging the creation of rural micro enterprises with strong involvement of women and young people;
- Training of strong leadership personalities for the promotion of renewable energies in the disadvantaged rural areas.

Main activities

- Installation of 20 kWp photovoltaic off grid systems and 2 km to 3 km of AC mini grids 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 CO₂ savings over 20 years, respectively 939 tons per year.



Senegal
Regions of Ziguinchor, Kolda and Tambacounda

SOLAR23 GmbH

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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

Connection type: off-grid

Technology: mini PV power plants with Low Voltage mini-grids

Total capacity to be installed: 1050 kWc

Estimated energy production: 6 898 500 kWh/year

Estimated cost of the energy produced: 0.29 €/kWh

Type of storage: batteries
Energy efficiency: systematic use of energy-efficient lamps

Total estimated cost of the project

EUR 16 000 000

Total EU co-financing requested

EUR 8 000 000

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 with 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 sections of society live.

Project objectives:

- Ensure access to sustainable electrical service for at least 50 000 people living in very isolated development pole villages;
- Improve the operation of basic social services;
- 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.

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;
- All of the basic social infrastructure of the target villages is electrified.



Senegal
Departments of Matam, Kanel, Ranerou, Goudiry and Bakel

Agence Sénégalaise d'Electrification Rurale (ASER)

Antou GUEYE SAMBA
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Website: www.aser.sn





Energy technology used in the project

Technology: mini-grid solar PV system

Total capacity to be installed: 2.7 MW

Total energy production: about 3.5GWh/year

Estimated cost of energy produced: life time levelized cost of energy is expected to be less than EUR 0.15

Total estimated cost of the project

EUR 11 762 778

Total EU co-financing requested

EUR 8 000 000

Direct beneficiaries

- Over 40 000 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

Solar PV Mini Grids for the Rural Towns of Areza and Maidma



Context

Eritrea is one of the least developed ACP countries.

Despite being with endowed a great potential for renewable energy, rural communities in Eritrea have poor access to energy, both for subsistence and productive purposes, as the energy sector is characterized 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 for solar and wind energy. The area is far from the grid and the chance for connection to the grid in the near future is re-

mote. 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 40 000 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, CBO, NGO and administration offices; social services: 17 educational, 7 health and 15 water supply facilities serving the population of the sub-zone.

Main activities

- Capacity building;
- Modernising social services;
- Monitoring and evaluation.

Expected results

- Local capacity built in the installation of solar PV mini-grids, operation and maintenance;
- Sustainable power provided to 40 000 people through solar mini-grid systems installed and commissioned;
- Income 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.



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

Ministry of Energy and Mines

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PRESSD-SL Promoting Renewable Energy Services for Social Development in Sierra Leone

Energy technology used in the project

Connection type: off-grid energy hubs

Technology: solar-PV, hydro-power (pico and micro) installations, ranging from 2 kW to 125 kW

Total capacity to be installed: 500 kW for fixed and 500 kW for private installations



Total estimated cost of the project

EUR 7 000 000

Total EU co-financing requested

EUR 5 250 000

Direct beneficiaries

15 000 households having access to off-grid home lighting

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 min. 200 jobs created;
- 22 operational energy hubs used by min. 50 000 smallholders;
- Access to off-grid home lighting by min. 15 000 households.

Enhance quality of public services:

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

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

- Min. 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 Kailahun districts)

Deutsche Welthungerhilfe e.V

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Co-applicants: Cooperazione Internazionale (COOPI) (Italy); Energy for Opportunity (ENFO) (Sierra Leone); IBIS (Denmark)



Energy technology used in the project

Connection type: off-grid

Technology: electrification by hydro-electric grid and small decentralised solutions (solar or pico-hydro)

Total capacity to be installed: 1 000 kW (hydro) and 200 kWc (solar)

Estimated energy production: 6 800 000 kWh/year (hydro) and 30 000 kWh/year (solar)

Estimated cost of the energy produced: 0.18 €/kWh

Total estimated cost of the project

EUR 6 185 000

Total EU co-financing requested

EUR 4 605 000

Direct beneficiaries

- 50 000 direct beneficiaries in 11 municipalities, that is, 8 000 households connected (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), 4 user associations (ASURE)

Rhyviere II Programme

Village Hydroelectric Grids, Energy and Respect for the Environment



- Implementation of a formal loan system for small rural entrepreneurs and assistance in developing their business activities;
- Searching for innovative financing methods and ways to add value to the hydro-electric resource;
- Supporting community electrification planning;
- Development of tools and procedures to structure the national rural electrification strategy.

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.

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 agricultural 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;



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

Gret

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Co-applicants: Enea Consulting (www.enea-consulting.com); CITE



Biodigesters Installation and Dissemination Programme

in rural Senegal (PIDB)

Energy technology used in the project

Connection type: off-grid

Total capacity to be installed: 12 000 KWh to 30 000 KWh

Estimated energy production: 43 800 000 kWh/year to 109 500 000 kWh/year

Estimated cost of the energy produced: 0.33 €/m³ of biogas or 0.055 €/KWh



Context

The percentage of the rural population of Senegal with access to modern energy services is under 10%. This situation imperils prospects for the social and economic development of local populations. 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 combat greenhouse gas emissions and to reduce poverty to meet 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.

Total estimated cost of the project

EUR 9 955 225

Total EU co-financing requested

EUR 7 394 730

Direct beneficiaries

72 000 local people

Main activities

- Implementation of a contract for the building of 10 000 biodigesters in 9 500 households and 500 school cafeterias and daaras;
- Promotion of biodigesters in households and 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 to improve knowledge and ensure optimal biodigester operation;
- 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 72 000 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.



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

Programme National Biogaz Domestique du Sénégal (PNB-SN)

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Name(s) of co-applicant(s): The government of Senegal



Fuelling inclusive growth

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.



Bangladesh Power Energy Efficiency

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.

Total estimated cost of the project
EUR 7 000 000

Total EU co-financing requested
EUR 5 700 000



Capacity-Building and Development of the Hydropower Sector in Pakistan

Context

There are three main potential barriers to development of hydro-power 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 hydro-power 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.

Total estimated cost of the project
EUR 130 100 000

Total EU co-financing requested
EUR 2 500 000



Pakistan

Efficient Transmission of Electricity from Renewable Energy Sources in Nepal

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.

Total estimated cost of the project
EUR 60 000 000

Total EU co-financing requested
EUR 2 250 000



Nepal

Trishuli River Basin

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



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.

Total estimated cost of the project
EUR 130 100 000

Total EU co-financing requested
EUR 2 500 000

MIFA Biogas/Renewable Energy Fund (MIFA = Microfinance Initiative for Asia, a joint initiative of KfW and IFC)

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 microfinance 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.

Total estimated cost of the project
RC: EUR 24 000 000
TA: EUR 4 000 000

Total EU co-financing requested
Risk Capital (RC): EUR 3 000 000
Technical Assistance (TA): EUR 1 000 000

Khujand Energy Loss Reduction Project (SUGD)

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.

Total estimated cost of the project
EUR 21 000 000

Total EU co-financing requested
EUR 7 000 000



Kyrgyzstan Sustainable Energy Efficiency Financing Facility (KyrSEFF)

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.

Total estimated cost of the project
EUR 20 800 000

Total EU co-financing requested
EUR 6 800 000



Kazakhstan Sustainable Energy Financing Facility

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.



Total estimated cost of the project
EUR 30 000 000

Total EU co-financing requested
EUR 5 000 000

Sub-Saharan Africa



Access to Electricity in the Atlantique Province in Benin

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'Énergie Électrique) 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 municipal-



ity 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

Total estimated cost of the project

EUR 53 000 000

Total EU co-financing requested

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

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)

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.

Total estimated cost of the project
EUR 8 390 631
Total EU co-financing requested
EU-AITF REGIONAL ENVELOPE
EUR 1.7m approved as Technical Assistance



Environmental Credit Lines for Kenya, Uganda and Tanzania Engaging Banks in Energy Transition Projects.

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.

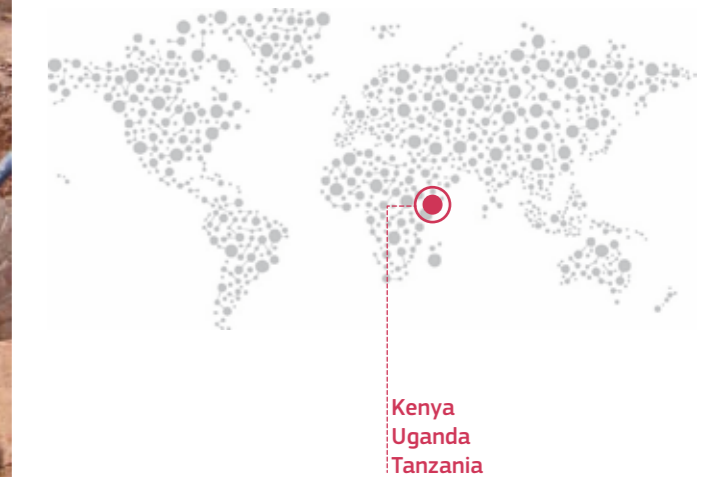
The targeted investments are mainly projects of a maximum amount of EUR 5 M in hydro-electricity, biomass, biogas, solar and wind power. Other types of projects eligible for AFD financing are energy efficiency projects, especially in the Agribusiness sector. These solutions, both energy efficiency (EE) 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.)



Total estimated cost of the project
Technical Assistance:
EUR 4 700 000
Credit Lines: EUR 93 000 000
Total EU co-financing requested
EU-AITF REGIONAL ENVELOPE
EUR 4 100 000 approved as Technical Assurances

- 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 CO₂: the expected savings related to the pipeline of projects identified is 1 500 k tonnes CO₂ equivalent per annum

Extension of NIGELEC network



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.

Total estimated cost of the project
EUR 41 000 000

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



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

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:

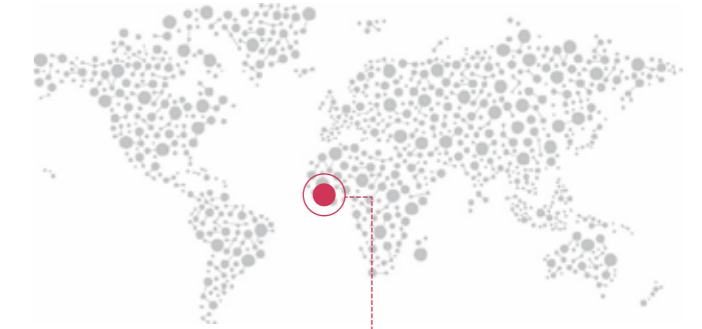
- Reducing the environmental and budgetary burden faced by many countries considering their heavy dependence on more and more costly fossil fuel imports and improving local public policies.
- Reducing energy consumption (and the related greenhouse gas emissions) in companies that have significant energy-saving 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.

Total estimated cost of the project
EUR 37 500 000

Credit Lines: EUR 93 000 000

Total EU co-financing requested

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



Côte d'Ivoire
Senegal
Burkina Faso
Ghana
Togo

Green Energy Finance for Indian Ocean Region (GEFIOR)

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

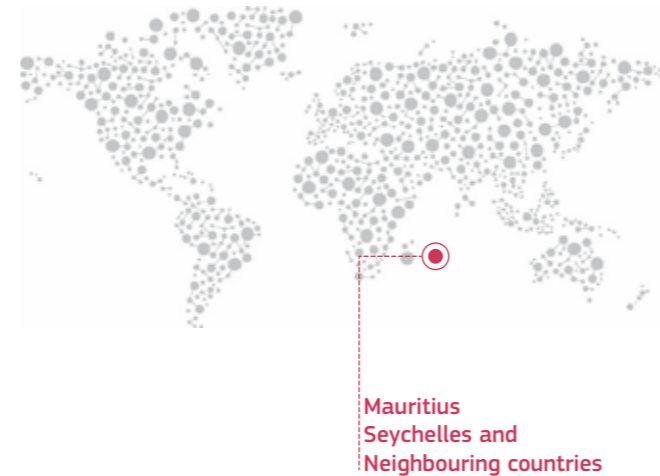
Expected results

Expected impacts:

- Renewable Energy: 25MW installed
- Energy savings: 50GWh/year
- CO₂ reduction: 240kTeqCO₂/year
- Recycled water: 1 000k m³/year
- Waste reduction: 4 kT/year

Total estimated
cost of the project
7 100 000

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



Support for Geothermal Development in Tendaho (Ethiopia)

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 Pro-

gram 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.

Total estimated
cost of the project
EUR 39.1m (for Phases I and II)

Total EU co-financing
requested
EU-AITF SE4ALL ENVELOPE
EUR 4.5m approved as
Technical Assistance
EUR 3m approved as
Investment Grant



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 CO₂ 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



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.

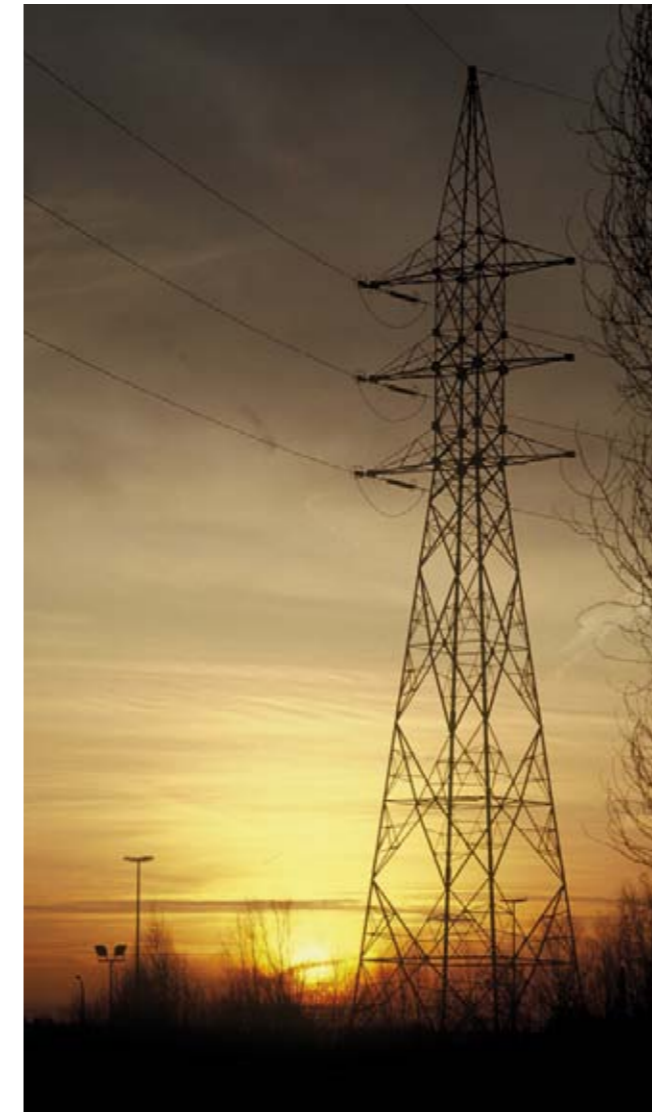
Total estimated cost of the project
EUR 50 000 000

Total EU co-financing requested
EU-AITF REGIONAL ENVELOPE
EUR 800k approved as Technical Assurances



Uganda
Rwanda
Masaka West and Mbarara North

Mauritania Senegal interconnection



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.

Total estimated cost of the project
EUR 150 000 000

Credit Lines: EUR 93 000 000

Total EU co-financing requested

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



Mauritania
Senegal

Mozambique Backbone STE

(Sistema de Transporte de Energia)



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.

Total estimated cost of the project
EUR 2 000 000 000

Total EU co-financing requested
EUR 2 200 000 approved as Technical Assurances



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

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



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.



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

Total estimated cost of the project
EUR 145 000 000 – estimated, to be updated as part of studies

Total EU co-financing requested
EU-AITF REGIONAL ENVELOPE
EUR 1 200 000 approved as Technical Assistance

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



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

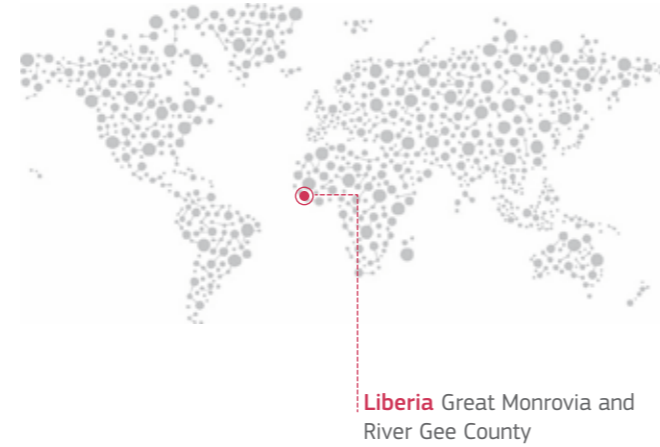
The grant will inter alia finance the physical implementation of the distribution network in River Gee county and the distribution in Great Monrovia.

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.

Total estimated cost of the project
EUR 34 740 000

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



Liberia Great Monrovia and River Gee County

Regional Rusumo Falls Hydropower Project

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



Tanzania Rwanda

Total estimated cost of the project
EUR 368 800 000 – estimated, to be updated as part of studies

Total EU co-financing requested
TA to AFDB of EUR 250 000
Investment grant to AFDB of EUR 12 750 000

WAPP – Coastal Backbone transmission line



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.

Total estimated cost of the project

Total cost range: from EUR 97 m to EUR 1.30 m depending on the option finally selected (single or double circuit line).

Total EU co-financing requested

EU-AITF REGIONAL ENVELOPE
EUR 1.75m approved as Technical Assistance



Ghana,
Côte d'Ivoire

Africa Energy Guarantee Fund (AEGF)

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



Sub-Saharan Africa

Total estimated cost of the project

EUR 600 000 000

Total EU co-financing requested

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

Interconnection Bolgatanga-Ouagadougou

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 Zagtoulé (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 CO₂ emission savings.



Total estimated cost of the project
EUR 34 740 000

Total EU co-financing requested
Investment grant to AfDB of EUR 10 000 000

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

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 Côte 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 communities 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 (0.02 k Tonne CO₂ equivalent per year).



Total estimated cost of the project
EUR 370 000 000

Total EU co-financing requested

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

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

Africa Sustainable Energy Facility (ASEF)



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

Total estimated cost of the project
EUR 50 000 000

Total EU co-financing requested
EUR 5 000 000 approved as Direct Grant
EUR 3 000 000 approved as Technical Assistance



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

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 ktCO₂e/year avoided.



Total estimated cost of the project
EUR 73 200 000

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



Benin Togo

Felou Hydropower plant / Aménagement Hydroélectrique de FELOU

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 CO₂ / greenhouse gases estimated at 161 k tonnes CO₂ equivalent per year



Total estimated cost of the project
EUR 179 000 000

Total EU co-financing requested

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

Lake Turkana Wind Power

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

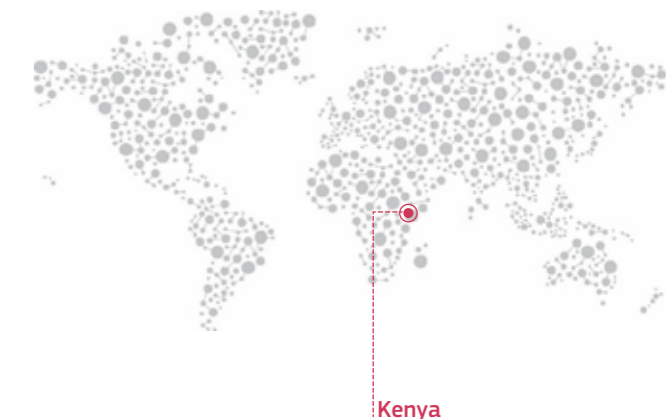
Development, construction and operation of a 310 MW wind farm near Loiyangalani in Marsabit District, approximately 12 km east of Lake Turkana in northern Kenya.

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.



Total estimated cost of the project
EUR 625 000 000

Total EU co-financing requested

EUR 25 000 000 approved as financial instrument and to be used as capital contribution to the project

Itezhi-Tezhi Hydro Power and Transmission Line

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 CO₂ 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

Total estimated cost of the project
EUR 267 700 000

Total EU co-financing requested

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.

Transmission Line Kafue-Livingstone

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.



Zambia

Total estimated cost of the project
EUR 70 300 000

Total EU co-financing requested

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.

Liberia Via Reservoir

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 km², storage volume 4 950 million m³.

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.

Total estimated cost of the project
EUR 258 000 000

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



Mount Coffee Hydro-power Rehabilitation

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-electricification 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 inter-connections. 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.



Total estimated cost of the project
EUR 186 200 000

Total EU co-financing requested
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)



Namibia Biomass and Solar Power



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

Total estimated cost of the project
To be defined

Total EU co-financing requested
EUR 2 300 000 approved as Technical Assistance.



Rehabilitation of Ruzizi I and II



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.



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

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.

Total estimated cost of the project
Not known at this stage

Total EU co-financing requested
EUR 3 000 000 for Technical Assistance

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

Total EU co-financing requested

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

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.

Total estimated cost of the project

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

Total EU co-financing requested

Technical Assistance grant of EUR 1 300 000



Clean Cooking Program for Africa (GLPGP)

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 Liquefied 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.

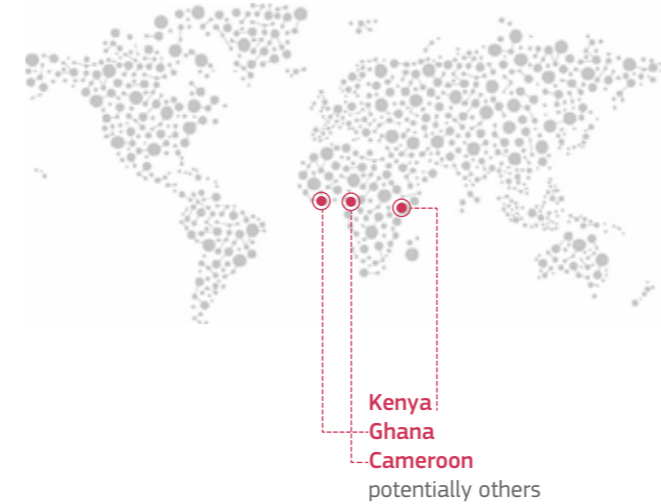
Expected results

- 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.

Total estimated cost of the project
Not known at this stage

Total EU co-financing requested

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



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



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 CO₂ over the 20-year lifespan of PPAs.

Total estimated cost of the project
EUR 427 600 000

Total EU co-financing requested

- Investment grant to KfW EUR 20 000 000



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)

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.



Total estimated cost of the project

EUR 150 000 000 of pipeline of projects during implementation period

Total EU co-financing requested

Direct grant to KFW of EUR 30 000 000

Kibuye-Goma-Birembo Interconnector

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.



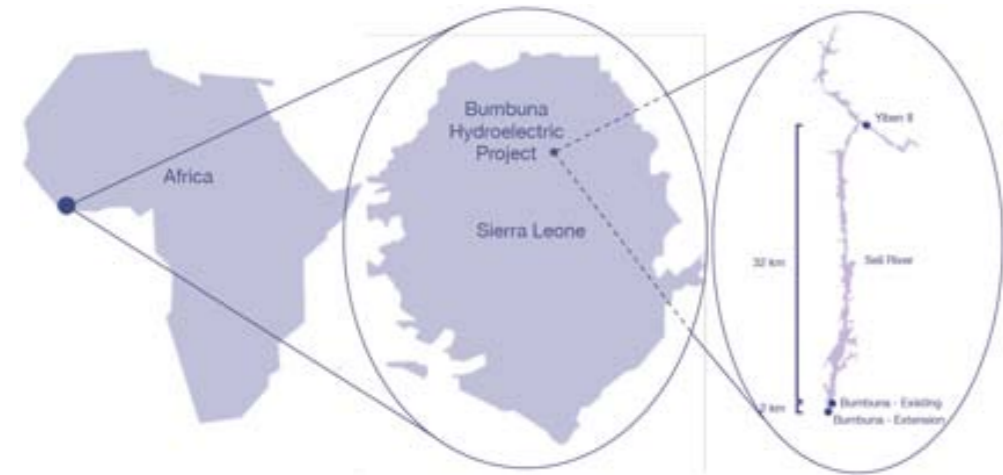
Total estimated cost of the project

EUR 65 000 000

Total EU co-financing requested

TA to KFW EUR 761 258

Bumbuna Phase II Hydro-electric Project – Sierra Leone



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.



Sierra Leone and, through energy trading, ECOWAS

Total estimated cost of the project
EUR 378 904 000

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

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

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.



Namibia

Total estimated cost of the project
EUR 306 000 000

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

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

Latin America



Power Utility Upgrade Program

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.



Total estimated cost of the project
EUR 38 750 000

Total EU co-financing requested
EUR 19 375 000

Chilean Solar Energy Programme

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.



Chile

Total estimated cost of the project
EUR 342 700 000

Total EU co-financing requested
EUR 15 000 000

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



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, CABEL, 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 CABEL, 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.



El Salvador

Total estimated cost of the project
EUR 122 000 000

Total EU co-financing requested
EUR 6 000 000

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 CO₂ 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

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.

Total estimated cost of the project
EUR 170 000 000

Total EU co-financing requested
EUR 1 500 000



Sustainable Electrification and Renewable Energy National Program (PNESER)

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.

Total estimated cost of the project
EUR 308 800 000

Total EU co-financing requested
EUR 7 000 000



Yacyretá transmission line, loss reduction and access to energy project

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 sub-systems, 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.



Paraguay

Total estimated cost of the project
EUR 200 700 000

Total EU co-financing requested
EUR 10 000 000

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.

Caribbean



Support to the development of Geothermal Energy

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 concessioning 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.

Total estimated cost of the project
EUR 8 500 000

Total EU co-financing requested
EUR 2 000 000



The Wotten Waven Area
Dominica
Guadeloupe
Martinique

Neighborhood South and East



AFD Sustainable Credit Facility in place in Jordan, rationalisation and harmonisation with the SEMED, SEFF incentives

Context

Jordan's reliance on energy imports, coupled with its low energy efficiency, is a particular concern for the country. Energy subsidy costs are high and the country has the lowest energy efficiency in the MENA region. With limited local energy sources, the dual impact of rising energy prices and increased demand has continued to highlight the need to both diversify the Kingdom's energy mix and secure a stable energy supply. The objective of AFD's Credit Facility is to support national priorities in the energy and environmental fields and scale-up needed investments with a view of creating a demonstrative effect on the market.

Main activities

In place since 2011 with two local banks, AFD's EUR 40m Sustainable Credit Facility in Jordan aims at providing financial incentives to finance small and medium green investments in Jordan, with a view of creating a demonstrative effect on the market. The targeted projects are investments in Energy Efficiency (EE), Renewable Energy (RE) and to a lesser extent Pollution Abatement (PA). With the introduction of the new SEFF project in Jordan (JorSEFF), local sponsors could possibly be more attracted by the higher incentives offered by the EU NIF, risking creating a market distortion against AFD's Credit Facility. Hence, this project aims at adding incentives for the AFD's Sustainable Credit Facility in order to ensure the same level of concessionality as the JorSEFF program.



Jordan

Total estimated cost of the project
EUR 38 500 000

Total EU co-financing requested
EUR 1 500 000

Expected results

The project will notably contribute to: (1) reduce the environmental and budgetary burden faced by Jordan considering its heavy dependence on costly fossil fuel imports and improve public policies; (2) reduce energy consumption in companies that have significant energy-saving potential; (3) develop a better knowledge of risks in banks, which will be encouraged to finance this type of project towards a more reasonable and rational assessment of the risk-taking related to sustainable projects. It will also contribute to supporting the structuring of a banking offer around the green economy; and (4) build a reference framework for technologies and projects that can be reproduced.

Green for Growth Fund (GGF) Extension to NIF Eastern Region

Context

The industries of the European Neighbourhood Region (ENR), which includes Armenia, Azerbaijan, Georgia, Moldova and Ukraine, are mostly dominated by heavy and energy-intensive sectors dating from the times of the Soviet Union, meaning high emissions and low economic efficiency. Although some of the ENR countries have very favourable climatic and geographic conditions that result in a high potential for the generation of energy from renewable energy (RE), a lack of sufficient legal, policy and other framework conditions currently impedes the widespread implementation of EE and RE technologies. The extension of the GGF to the ENR shall contribute to overcoming this by providing long-term financing instruments. Additionally, the Technical Assistance (TA) Facility of the GGF shall support local financial institutions in developing EE and RE financing as a sustainable field of business.

Main activities

The Green for Growth Fund (GGF) will provide refinancing for investments in energy efficiency (EE) and renewable energies (RE) to small and medium-sized enterprises (SMEs) and households via local financial institutions and for stand-alone projects in the NIF Eastern Region. An amount of EUR 10m of the proposed grant shall be contributed in form of equity participation (C-Shares) to the First Loss Tranche of the GGF. The purchased C-Shares will be regionally restricted and can only be used as a risk cushion for investments in the five countries of the ENR. An amount of EUR 2m of the NIF contribution shall be allocated to the TA Facility of GGF and be dedicated to the NIF Eastern Region. BMZ also provided an amount of EUR 1m to the TA Facility for the ENR countries.

Expected results

The investments of end-users financed under the GGF are expected to yield energy and/or CO₂-emission savings of at least 20%. Similar results are expected for EE and RE investments in the ENR. The energy and emissions savings of the end-users are monitored by "eSave", which is an Internet-based application instrument developed by the fund manager that automatically calculates the savings for standard as well as non-standard products. Beside its positive effects on the mitigation of global climate change, a decrease in energy consumption and intensity will improve the competitiveness of the industries and contribute to the diversification of the energy mix and reduce dependence on external energy imports.

Total estimated cost of the project
EUR 166 100 000
Total EU co-financing requested
EUR 10 000 000 (equity participation)
+ EUR 2 000 000 (technical assistance)



European Neighbourhood Region:
Armenia
Azerbaijan
Georgia
Moldova
Ukraine

Integrated Wind Programme

Context

Morocco depends on 95% of foreign energy supply. This strong dependence, combined with the upward trend in the process of petroleum products heavily effects the country's balance of payments. To reduce its dependence on foreign energy and to cope with the increasing demand, the Moroccan government has launched an energy strategy with ambitious targets until 2020. The strategy prioritises energy security and regional integration in a sustainable development approach that protects the environment and climate.

Main activities

The Wind Power Integrated Programme includes the development, financing, construction, grid connection, operation and maintenance of a total installed capacity of 850 MW over five wind farms, namely: (1) Midelt, a nominal installed capacity of 150 MW; (2) Tiskrad, a nominal installed capacity of approximately 300 MW; (3) Tanger II, a nominal power installed capacity of approximately 100 MW; (4) Jebel Al Hadid, with a nominal installed capacity of 200 MW; and (5) Boujdour, a nominal installed capacity of approximately 100 MW. The projects will be implemented through public-private partnerships (PPP).

Expected results

The expected result is to have an installed capacity of about 450 MW in wind farms Tanger II Midelt, and Jbel Lahdid. The program contributes to reducing emissions of greenhouse gases and Morocco's dependence on fossil fuel imports. Beyond electricity production, the program also contributes to job creation, the creation of a high level of expertise and strengthening research and development in the technology sector. Key



Morocco

Total estimated cost of the project
EUR 859 000 000
Total EU co-financing requested
EUR 15 000 000

Jvari – Khorga Interconnection (Transmission Line and Substation)

Context

Due to its potential, the Government of Georgia (GoG) considers the energy sector as the key sector for economic growth and prosperity and has attached great importance to further develop and modernise the infrastructure. However, due to inadequate network capacity as well as unstable and unreliable operating systems, the risk of system outages has increased. These outages hinder power export and hydro-power potential, and in turn economic growth. The project aims at further developing the renewable energy resources and to expand the transmission infrastructure to export clean energy to growing markets like Turkey and Europe.

Main activities

The Project aims to eliminate the still existing bottlenecks in the power transmission network in the western part of Georgia. It stands in the broader context of improving the country's energy infrastructure, facilitating hydro-power development and enhancing power export and transit potential. The project consists of: a construction of approximately 8 km of double circuit (DC) 500 kV overhead line as tie-in of the 500 kV Kavkasioni line (linking Russia with Georgia); a construction of approximately 60 km of 220 kV DC overhead line from Jvari to Khorga; a construction of a new 500/220kV substation at Jvari – 500 kV side in breaker-and-a-half arrangement, 220 kV side with double busbar system including bus coupler and six line bays; construction of one 500/220 kV transformer bank, including building and related civil works; mitigation measures to avoid or reduce potentially significant damage to the environment, and to restore land once construction is complete; compensation measures for resettlement and/or economic loss due to land use and acquisition; and consulting services in support of the Executing Agency for the implementation of supply and services.

Expected results

The Project will lead to higher transmission capacities, stabilising the domestic power transmission system and thereby further improving the security of supply. It will also facilitate the power evacuation of several small and mid-sized hydro-power projects. Moreover, the project addresses the growing electricity demand and supports the further economic development of Georgia. The project furthermore contributes to environmental and climate protection by enabling more renewable capacity to be added to the network in the north-west of the country in the future.

Total estimated cost of the project
EUR 71 420 000
Total EU co-financing requested
EUR 8 000 000



Lebanon Energy Efficiency GL



Context

Power generation is highly inefficient in Lebanon and the security of supply during power cuts is ensured by back-up generation at larger companies and informal neighbourhood generators that work at unacceptable environmental conditions. Moreover, the country is highly dependent on imported fossil fuels. Energy demand in Lebanon is estimated to grow at an average of 3-5% per year for the coming 10 years, meaning that the Lebanese electricity sector will face further challenges unless substantial investments and structural reforms are undertaken urgently. In this context, energy efficiency (EE) remains an unfulfilled potential. In addition, and although Lebanon is endowed with a vast amount of available renewable energy (RE) sources, RE still plays a minor role in the energy supply mix of Lebanon. The project will help to alleviate the critical situation of the energy sector in Lebanon.

Main activities

The proposed loan will be structured as an Apex sovereign loan to be signed between EIB and AFD respectively with the Republic of Lebanon, represented by the Council for Development and Reconstruction (CDR). The main intermediary and promoter of the project is the Lebanese central bank, Banque du Liban (BdL). BdL will channel the funds to the final beneficiaries via selected Lebanese banks acting as financial intermediaries (FI). The requested NIF grant would finance the provision of technical assistance for project implementation. The TA programme will consist of some core components, such as: project identification; project preparation and appraisal support; calculation of financial viability of individual projects; awareness raising; marketing activities; training; monitoring; and coordination with other donors' activities.

Expected results

The proposed project will enable the funding of energy-related projects. In the long run, this project will help the Lebanese commercial banks in building capacity and strategies in the field of EE/RE. This will set the ground for the market and ensure its sustainability. The leverage ratio of the NIF contribution will be 20x, i.e. EUR 4m of grants in TA from the NIF will contribute to leverage up to EUR 80m in loans from EIB and AFD.

Total estimated cost of the project
EUR 151 000 000
Total EU co-financing requested
EUR 4 000 000



Strengthening Morocco's High Voltage Transmission Network

Total estimated cost of the project
EUR 411 000 000
Total EU co-financing requested
EUR 15 000 000

Context

With limited domestic energy resources, Morocco today depends 95% on foreign energy supply. This strong dependence, combined with the upward trend in the prices of petroleum products heavily strikes the trade balance and in the budget of 2011, energy costs accounted for 25% of imports and the public subsidy to petroleum products alone accounted for a budgetary cost equivalent to EUR 400m, or 0.5% of GDP.

Main activities

The program has two components: (1) an investment component for strengthening the network of high voltage and high power transmission; and (2) a technical assistance component. This investment program is based on: the blueprint of the electricity sector developed by the ONE (Office National de l'Electricité) and validated by the Moroccan government; studies and building high voltage network on multiple demands; and specific studies of power plants in the context of solar and wind programs. The technical assistance component consists of three activities: (1) Supporting the planning of the power sector; (2) strengthening capacities for environmental and social monitoring of electrical infrastructure; and (3) supporting the implementation of the consolidation of the ONE and ONEP (Office National de l'Eau Potable).



Expected results

The purpose of the program is to improve economic production and well-being through the provision of reliable and competitive energy. The program has four sub-objectives: (1) ensure the transmission of electricity in a cost-efficient and safe manner; (2) ensure the removal of new production units: strengthening the power transmission network will connect future units including solar and wind generation; (3) strengthen the capacity of ONEP (Office National de l'Electricité et de l'Eau potable) planning and environmental and social monitoring of projects in the electricity sector; and (4) support the implementation of the consolidation of the ONE and ONEP.



SEMED Regional Sustainable Energy Finance Facility: Phase 1 – Morocco and Jordan Sustainable Energy Finance Facility (SEFF) – Implementation Support

Total estimated cost of the project
EUR 141 700 000
Total EU co-financing requested
EUR 16 500 000

Context

Growing Southern and Eastern Mediterranean (SEMED) countries' populations and economic activity are putting pressure on the governments to meet growing demand for energy in general and specifically increased power demand, while minimising public budget implications, environmental impact and creating employment opportunities. In order to capitalise on this growth, large investments are needed to build projects on the ground, stimulate innovation and develop local R&D. Morocco and Jordan are heavily dependent on fossil fuel imports and present barriers to investing in energy efficiency projects. Moreover, the regulatory environment is not favourable to investment in these types of projects.

Main activities

SEMED SEFF Phase I will be a joint action between EBRD as the lead IFI and KfW, EIB and AFD to extend at least EUR 110 million of credit lines to Participating Financial Institutions (PFIs) in Jordan and Morocco to finance energy efficiency and sustainable energy investments in industry, SMEs, agribusiness, commercial services and the residential sector. The participating DFIs will provide loans to PFIs at commercial rates and PFIs are expected to on-lend to sub-borrowers at commercial rates.

Expected results

The expected results are to make progress in energy efficiency and promotion of the use of renewable energy sources and resource efficiency in Morocco and Jordan, and build on the track record of the EBRD and other DFIs in the field of sustainable energy finance to develop sustainable energy financing. It is expected that the Facility will support institutional capacity building in a number of PFIs and create the first successful

sub-projects to serve as an example and initiate positive dynamics of investing in sustainable energy in each participating country and encourage other PFIs and investors to pursue similar investments. Technical Assistance will enable PFIs to institutionalise the know-how required to support this type of investment, and Institutional Capacity Building will contribute to building the relevant legal, regulatory and institutional capacity by pursuing active policy dialogue with national and international stakeholders.



Caucasus Sustainable Energy Finance Facility: Implementation Support

Context

The Caucasus Sustainable Energy Efficiency Facility (“the Facility”) targets 3 countries of the European Neighbourhood Region (ENR): Georgia, Armenia and to a lesser extent Azerbaijan. These countries have a large industrial sector with high intensity of energy consumption. Georgia and Armenia are highly dependent net energy importers in the region and are surrounded by some of the world’s energy giants (i.e. Russia, Iran, and to a smaller but growing extent Azerbaijan). As a result of the increased price of Russian gas, companies now have to find ways to improve their own production. The Facility was set up by the European Bank for Reconstruction and Development (EBRD) in 2007 to provide financing of up to USD 60m with estimated allocated funds of up to USD 35m in Georgia, USD 20m in Armenia and in USD 5m Azerbaijan. The Facility aims to achieve increased market awareness and transfer of skills related to rational energy utilisation as well as savings in energy consumption and reduction of CO₂ emissions.

Main activities

The Caucasus Sustainable Energy Financing Facility is providing financing to local Participating Financial Institutions that on-lend for energy efficient, renewable and residential investments in Georgia, Armenia and Azerbaijan. The Facility will be supported by Technical Cooperation and financial incentives to sub-borrowers.

Expected results

The implementation of SEFF in Armenia, Azerbaijan and Georgia is expected to: (1) increase financial intermediation, financing for rational energy utilisation as well as providing benefits in terms of energy resource utilisation and assisting in miti-

gating increasing energy prices and high energy intensity in the region; (2) enhance sustainable energy investments in the region by (i) further improving financial intermediaries’ capacity to appraise and finance energy efficiency and small scale 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 (3) provide much needed project preparation support and financing to industry, SMEs, agribusiness, residential and commercial services for their sustainable energy investment under still difficult credit conditions in the region.

Total estimated
cost of the project
EUR 64 600 000

Total EU co-financing
requested
EUR 5 100 000



2nd Phase of the Moldova Sustainable Energy Efficiency Finance Facility(MoSEFF2)

Context

Moldova is characterised by high energy dependency, waste of energy at the end user level as well as obsolete condition of the energy infrastructure. Energy efficiency as well as renewable energy sources remain the only tools in Moldova for improving the national energy balance, reducing energy import expenditures and aiming for more sustainable energy use. The Government of Moldova has also indicated its willingness to pursue policy measures to promote investments in supply and demand side energy efficiency and renewable energy. Barriers to investing in energy efficiency projects exist at the level of Participating Banks, strategic investors and projects implementers, as well as in the legal/regulatory environment.

Main activities

The project intends to extend a EUR 15m credit line to the Participating Banks (PB) to finance energy efficiency and small renewable energy investments by industry, SMEs, agribusiness and commercial services in Moldova as the second phase of MoSEFF, as well as supporting the implementation of the MoSEFF2 credit line. The Technical Assistance (TA) financed by the grant is intended to improve the project quality by addressing specific barriers to financing, such as lack of information on technologies, management skills and planning capabilities.

Expected results

The objectives of the MoSEFF2 are: (1) to make further progress on energy efficiency and promote the use of renewable energy sources in Moldova in line with the strategic objectives of the EU Moldova Action Plan; (2) to build on track record of the original MoSEFF to enhance sustainability of sustainable energy finance in Moldova by improving intermediaries’



capacity to appraise and finance energy efficiency and small renewable energy investment projects as well as supporting local engineers to improve their technical expertise; and (3) to provide project preparation support and financing to industry, SMEs, agribusiness and commercial services for their sustainable energy investment under still difficult credit conditions in Moldova.

Total estimated
cost of the project
EUR 15 000 000

Total EU co-financing
requested
EUR 4 500 000



200 MW Wind Farm project in the Gulf of El Zayt



Context

The project is part of a larger national programme in the same region to further expand power generation from renewable energy in Egypt, and as such will support the governmental objective of expanding electricity production from renewable energy sources. The specific object is to construct a wind farm of up to 200 MW on the West bank of the Gulf of Suez. The envisaged project measures comprise all activities required in the context of the construction and long-term operation of the facilities, including consulting services, ground surveys, the provision of materials and equipment, the implementation of construction measures and electrical installation, connection to the high voltage power grid.

Main activities

The project involves studies, design, construction, commissioning and operation of a large-size (up to 200 MW) onshore wind farm to be located on the West banks of the Gulf of Suez. The location with a size of about 36 km² is characterised by very favourable wind resource conditions. The project will also include gravel roads between the turbine rows, internal cabling, ring main or transformer package stations next to the wind turbines and a remote control unit. Further, a substation including a service centre and an interconnection to a main high voltage overhead transmission line will be constructed.

Expected results

The general objective is to improve access to electricity for the Egyptian population, and to contribute to global environmental protection by producing environmentally sound electrical energy and avoiding the generation of CO₂ emissions at a reasonable economic cost.

Total estimated cost of the project
EUR 340 000 000
Total EU co-financing requested
EUR 10 000 000



Egyptian Power Transmission



Context

The project is in line with the general strategic objectives of the EU – Egypt cooperation related to external energy security, renewable energy and economic development. The EU is supporting comprehensive technical assistance and advisory services to underpin the sector reform and the establishment of a regional electricity market in particular.

Main activities

The Project concerns a medium-term multi-scheme priority investment programme to reinforce and extend the Egyptian national extra-high voltage and high voltage electricity transmission grid. The Project consists of 21 transmission infrastructure components of the Egyptian 220-500kV transmission network. In parallel, a long-term technical assistance to the Project Implementation Unit (PIU) shall be wholly financed.

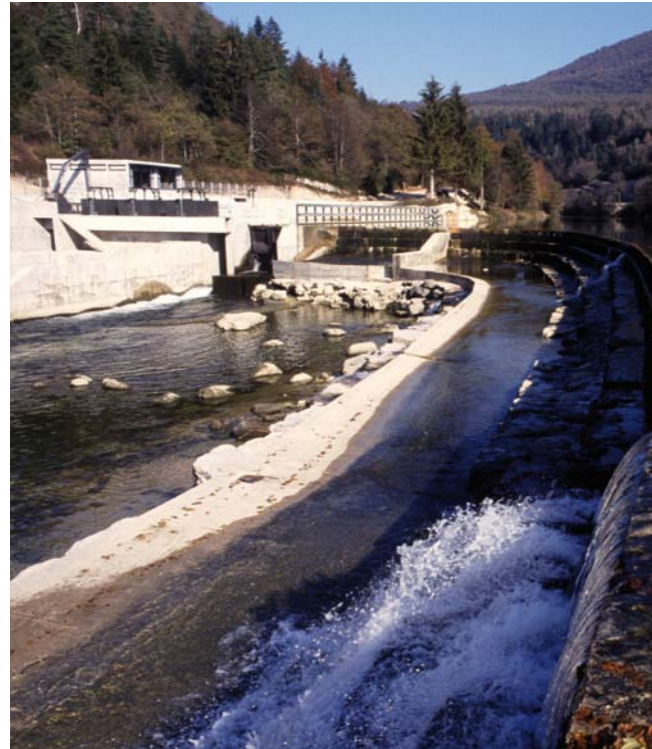
Expected results

The objective is to strengthen the Egyptian electricity transmission network and promote its development through the construction of new transmission lines and substations. The project will cater for the connection of new generation capacity and provide possibilities for interconnections with Gaza strip. The main economic interest of the project is linked to maintaining a reliable supply of electricity and to catering to the needs of a growing economy. The project will also enable the balancing of energy loads and the reduction of technical losses, while increasing the reliability and quality of supply. As such, the project will support economic development and will also contribute to the support of renewable energy. In particular, the project is also in line with the second strategic EU energy review, proposing a Mediterranean energy ring that must be completed, linking Europe with the Southern Mediterranean through electricity and gas interconnections. This ring is considered essential to develop the region's vast solar and wind energy potential.

Total estimated cost of the project
EUR 762 000 000
Total EU co-financing requested
EUR 20 000 000



Hydro Power Plant



Context

The Project's objectives are: i) to ensure the safe release of Enguri Hydro-Power Plant (HPP) (1 300MW capacity after completion of the rehabilitation programme) tail water in the Vardnili cascade located downstream; and ii) to increase the production capacity at Enguri HPP through efficiency measures that will provide 30% more energy from each unit without additional effects to the environment (i.e. without any change in the water reservoir operation).

Main activities

The Project concerns the preparation and implementation of the last stage of rehabilitation of Enguri-Vardnili cascade and will consist of the following components: (1) the completion of the Enguri HPP rehabilitation (2 remaining units); (2) safety works on the Vardnili dam and water channel, to allow safe operation of the dam and release of tail water from the Enguri HPP to the Black Sea; and (3) independent Engineer (IE) to monitor and supervise the project implementation. The contribution to the Project will be used for investment co-financing and technical assistance, and will finance exclusively the following components of the Project: (a) Investment co-financing grant for an estimated amount of EUR 4m which will be used for: i) Repair of access road to the Vardnili site; ii) Civil works on Vardnili channel; (b) Technical Assistance (TA) for an estimated amount of EUR 1m to hire an IE to supervise the project implementation. The European Bank for Reconstruction and Development (EBRD) will finance the first two years of the IE services and the EUR 1m contribution will finance the third year of IE services. This TA component of the NIF contribution will be directly implemented by the EBRD; therefore a Contribution Agreement will be signed between the EU and the EBRD to implement this TA. The amount allocated to this component will also be directly disbursed to the EBRD under the conditions specified in the above-mentioned Contribution Agreement.

Expected results

The proposed Project is the last stage of the rehabilitation of the Enguri HPP units and will allow the safe operation of Enguri HPP at full capacity. The rehabilitation of the two last units at Enguri will provide 60 MW additional capacity that will replace more expensive thermal generation and imports in winter; additional revenues will come from summer exports that will be



Georgia

Total estimated cost of the project
EUR 47 000 000
Total EU co-financing requested
EUR 5 000 000

permitted thanks to the Black Sea Transmission line presently under construction and co-financed by the NIF. As a result of the Phase III rehabilitation, of the production volume of Enguri HPP is expected to increase by approximately 200 GWh per year. Rehabilitation of the Enguri-Vardnili cascade will also increase the safety in the Enguri power plant operation providing for the safe release of water, used for electricity production, into the Black Sea.

Jordan Electricity Transmission

Context

The project promoter is the National Electric Power Company (NEPCO), the Jordanian electricity transmission operator. NEPCO owns and operates the national grid transmission lines over a total length of around 3 800 km. The Jordanian grid is interconnected with Egypt, Syria and the West Bank.

Main activities

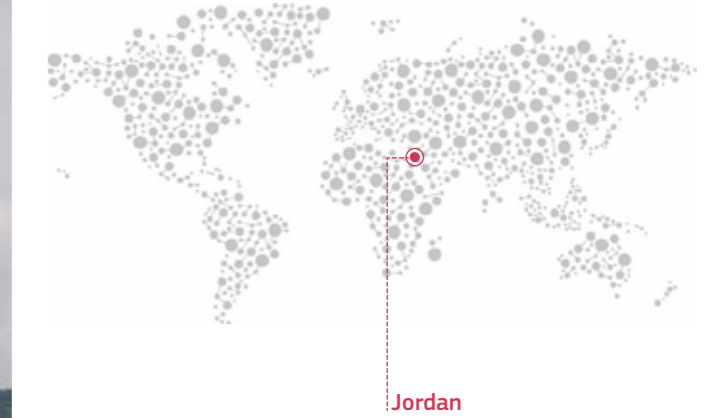
The underlying project includes the construction of new transmission lines, substations and connection lines to new generating units. More specifically, project components would include (1) the reinforcement of the south-north high voltage transmission corridor; (2) the connection to future renewable energy units; (3) a connection to a new conventional energy generation unit; and (4) an interconnection with Palestine. Moreover, the project shall finance the feasibility study for the main component of the investment programme, concerning the reinforcement of the south-north high voltage transmission corridor.

Expected results

The expected results are to enhance electric connectivity and transfer within the MENA region and with Europe and to integrate renewable energy resources into the Jordanian national grid, and in the longer term facilitating renewable electricity export from Egypt and Jordan to the North. Finally, the transmission line will constitute an adequate electrical point to implement a strong connection with Palestine. The main specific



objectives of the feasibility study are to: (1) consider the existing situation of the power system, the prospect for future connections and the planned interconnections with neighbouring countries; (2) enabling secure, stable and reliable exchange of bulk amounts of power and determine the necessary reinforcement for the south-north transmission corridor; and (3) to propose the Project implementation approach, including preliminary design, project implementation planning, procurement plan and bidding documents for the transmission lines and related substations.



Jordan

Total estimated cost of the project
EUR 450 000 000
Total EU co-financing requested
EUR 2 350 000

Moldovan Residential Energy Efficiency Financing Facility (MoREEFF)

Context

Moldova is more than 90% dependant on energy imports from Russia and Ukraine. The country is characterised by existing barriers in the energy efficiency residential sector of Moldova preventing local banks and their clients from engaging in the priority investments that are targeted by the Moldovan Residential Energy Efficiency Financing Facility (MoREEFF).

Main activities

MoREEFF will provide EUR 25m to Participating Banks towards financing residential energy efficiency in Moldova. In order to overcome the various barriers, the credit lines under MoREEFF will be complemented by a carefully designed package of technical assistance; direct support and first loss cover mechanism for housing associations and financial incentives to sub-borrowers. MoREEFF will provide long-term commercial financing for energy efficiency in the residential sector, with strong market development, capacity building, and policy facilitating.

Expected results

MoREEFF aims to achieve environmental and social improvements. Increased efficiency in energy consumption and the reduction of heat transmission losses will lead to a reduction of air pollutants resulting from heat and electricity generation. The combination of financial incentives to households and financial intermediaries with specific technical assistance support will help remove barriers to the development of energy efficiency.

The project will also have a high impact on the reinforcement of the technical capabilities of the Moldovan banking sector to increase financing of energy efficiency projects. MoREEFF will be able to build awareness and capacity amongst professionals and financial institutions in Moldova and continue to address the low levels of awareness of energy efficiency and renewable energy technologies in Moldova.

Total estimated cost of the project
EUR 8 800 000

Total EU co-financing requested
EUR 5 000 000



Neighbourhood Investment Facility contribution to the “Moldoelectrica Power Transmission Network Rehabilitation”

Context

The project aims at the rehabilitation of the existing internal power transmission network of Moldelectrica, the state-owned Moldovan transmission system operator. It will strengthen regional interconnections and develop regional electricity trade. The general objective of the project is to reinforce regional interconnections and develop regional electricity trade, helping the integration of the Republic of Moldova to the European Network of Transmission System Operators for Electricity (ENTSO-E).

Main activities

The main activities are reconstruction of substations and transmission lines, supply and installation of transformers as well as installation of cells and switches in several substations. Moreover, technical assistance (TA) will be provided in order to facilitate project implementation. The TA component will provide institutional strengthening of the State-owned company Moldelectrica and policy dialogue with the authorities on energy sector and reform.

Expected results

The NIF contribution will assist: (1) in rehabilitating the power transmission system of the country in preparation for ENTSO E accession, and (2) in decreasing the level of technical losses in the grid (with resultant decreases in emissions from fossil fuel-fired generation). The project will decrease losses by approximately 20% in the substations rehabilitated in the framework of the project. The rehabilitation of the network will result in improved security of the transmission network and energy efficiency. Key environmental benefits can also be drawn from the investments as old transformers, which utilise toxic oil (PCB), will be replaced by new equipment which uses non-toxic oil. Furthermore, increasing the reliability of the network is expected to diminish the number of customers disconnecting from the transmission network and decrease the reliance on environmentally harmful fuels to generate electricity.

Total estimated cost of the project
EUR 39 300 000

Total EU co-financing requested
EUR 8 000 000



Technical Assistance for Hydro-power Rehabilitation Project



Context

JSC UkrHydroEnero ("UHE") is a 100% State-owned hydro-power generation company subordinated to the Ministry of Fuel and Energy of Ukraine. It was created in February 2004 through a merger of the state-owned companies "DniproHydroEnero" (operating a cascade of hydro-power plants on the Dnipro river) and "DniesterHydroEnero" (operating a hydro-power plant on the Dniester river). UHE currently operates nine hydro-power plants (including the Kyiv pumped storage plant) with total installed capacity of around 4 586 MW.

Main activities

The EBRD and EIB will finance key investments in the national hydro-power rehabilitation programme in Ukraine. The "Technical Assistance for Hydro-power Rehabilitation Project" will support the government of Ukraine/JSC UkrHydroEnero (UHE) in the preparation/implementation of six different projects. The action will consist of technical assistance as well as consultancy services to facilitate investments.

Expected results

The objective of the project is to assist the Government of Ukraine/UHE to implement part of the Ukrainian Energy Strategy to 2030 adopted in March 2006. The strategy calls for large-scale upgrades in the power sector to achieve adequate power supply and meet technical requirements for the Ukrainian power system's integration into the European transmission system and into the EU's internal energy market. In addition, the project will improve the environmental safety of the hydro-electric units by installing non-polluting turbines. The environmental component of the project is important, taking into account critical roles that the Dnipro and the Dniester rivers play in water supply in Ukraine and neighbouring countries. The efficiency, safety, quality and reliability of the hydro-power units will be enhanced by the works during the project implementation.

Total estimated cost of the project

N/A

Total EU co-financing requested

EUR 3 750 000



Ukraine Power Transmission Network Reinforcement Project



Context

In March 2006, Ukraine adopted its Energy Strategy to 2030, which stresses the necessity to implement large-scale upgrades of the Ukrainian power grid in order to accommodate projected growth in peak demand and electricity consumption, achieve reliable operation of the power grid, increase in electricity experts as well as prepare for Ukrainian power system integration with UCTE. Most high voltage networks were constructed in the 1960s, when Ukraine started industrialisation.

Approximately 40% of the equipment has twice exceeded its design service life. The deterioration of the high voltage network has resulted in a general decline in reliability and quality of electricity transmission. The grid company, NEP Ukrenergo, is seeking to address the situation. The EBRD and the EIB are currently envisaging financing of several key investments in Ukrainian high voltage power network reinforcement. The projects would focus on technical loss reduction, overall network reliability/stability improvement, and fulfilment of requirements for full synchronisation of the whole Ukrainian power network operation with the rest of Europe.

Main activities

The project supports the Government of Ukraine/NEP Ukrenergo to prepare/implement: (1) the Zaporizhzhia-Kakhovka Line, involving a construction of a new 190 km 750 kV line and a new 750/330kV Kakhovka substation with two automatic transformers; (2) the Novoodesskaya-Artsyz Line, consisting of a new 140 km 330 kV line and installation of a second 200 MVA autotransformer; (3) the South Ukraine Regional Transmission Network Project, which will de-bottleneck weak and obsolete regional high-voltage networks in Crimea and its surrounding areas; and (4) the Kakhovka-Prymorska-Khmelnytska line, an extension of the Zaporizhzhia-Kakhovka line and the completion of the second 750 kV national backbone corridor from Southern Donbaska and Rivne.

Expected results

See 'main activities'



Total estimated cost of the project

EUR 10 000 000

Total EU co-financing requested

EUR 7 700 000

Ouarzazate Solar Plant

First Phase



Context

In November 2009, the Kingdom of Morocco (KoM) launched the Moroccan Solar Plan in order to develop solar power generation and related local industry with a target capacity of a minimum of 2 000MW to be installed by 2020. The Moroccan Agency for Solar Energy (MASEN) is responsible for the implementation.

Main activities

The Plan will allow the KoM to: (i) optimise the generation mix whilst reducing dependency on primary energy imports; (ii) meet growing domestic demand; (iii) encourage the launch of a local renewable energy manufacturing industry; (iv) promote research & development and training related to these activities; (v) establish the country as the first North African developer of scalable solar generation; and (vi) minimise carbon emissions. The first step of the Solar Plan is the proposed development of a 500 MW solar power complex located close to Ouarzazate. The site locations for the remaining part of the Moroccan Solar Plan will be selected at a later stage. The 500 MW Ouarzazate Program will be developed through different phases. It will be a solar plant with a production capacity between 125 and 160 MW. This first project is scheduled to start operations at the end of 2014.

Expected results

1. To build a renewable energy production facility, which will reduce both dependence on imported fossil fuels and their negative impacts on the natural environment
2. To secure Morocco's national electricity supply by diversifying sources of energy and gain the capacity to export its energy production to EU.
3. To develop the solar industry in Morocco.

Total estimated
cost of the project
EUR 807 000 000

Total EU co-financing
requested
EUR 30 000 000



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, GEEREF 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
Visum Hydro Power Fund	Ukraine	EUR 9mn

4

Catalysing reforms - making change happen

Technical Assistance Facility

Catalysing reforms – making change happen

Technical Assistance Facility

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, to assist partner countries in fine tuning their policies and regulatory framework that allow for increased investments in the energy sector. Two contracts covering the whole of Sub-Saharan Africa are fully operational since December 2013 and will soon be replicated to also cover Neighborhood countries (East and South), Asia (including Central Asia), Latin America as well as the Pacific and Caribbean region. The Technical Assistance Facility supports countries which are committed to reaching the Sustainable Energy for All objectives, in particular those who selected energy not only as one of the priority areas of their national policy agenda but also as focal sector in their bilateral cooperation with the EU for the period of 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 private investments in the energy sector.

Since it started in December 2013, the Facility is successfully fulfilling 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.**

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

- **Policy and reforms:** 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:** In terms of effective development of the energy sector, this assistance package is taking a crucial role. The Facility supports the countries in preparing and prioritising their infrastructure projects, ensuring the projects' relevance and overall coherence with the national policies.

- **Mobilising funds and partnerships:** The leveraging of funds and their innovative use are key to revealing 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 the 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.

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Several missions have been undertaken already by the Technical Assistance Facility, namely to Liberia, Cape Verde, Rwanda and Eritrea as well as to Mozambique and to Burundi 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 endeavor towards affordable energy for all. The regulator will be established with the support of the technical assistance deployed in the country and is expected to be already operational in 2014. 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

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 as well as the country's macro-economic situation have been comprehensively analysed and concrete solutions will be recommended.

Energy being a crucial factor for sustainable economic de-

velopment, the importance of developing the sector in a cost-effective manner for the population and to make private investments more attractive, by clarifying the legal and regulatory framework, have been identified as key areas for improvement and they will be addressed by the technical assistance experts.

Developing **Rwanda's** renewable energy law

Rwanda's vision 2020 and its strategy for economic development 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 our partners

Reinforcing the bilateral and multilateral dialogue and strengthening regional cooperation

Building alliances
Continental dialogue to catalyse cooperation and investment

Reinforcing the bilateral and multilateral dialogue and strengthening regional cooperation

Around 80 countries have taken the courageous step of signing up to the ambitious objectives of Sustainable Energy for All, thereby underscoring their will to end energy poverty. 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 and it has allocated about EUR 3 billion 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 dedicated calls for proposals and utility companies will be strengthened through new and innovative tools. Last but not least, we will also tackle cross-sectoral issues, such as fostering SME's, pay 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 that will allow 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 a sustainable economy that can generate growth, create jobs and help reduce poverty by valuing and investing in natural capital, including through supporting market opportunities for cleaner technologies, energy and resource efficiency and low-carbon development, while stimulating innovation, the use of ICT and reducing 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.

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.

6

Energy for growth – on track for a brighter future

EU energy approach in development

Energy for growth – on track for a brighter future

EU energy approach in development

In Africa, the population is expected to double by the middle of this century. As a result, it is clear that the need for energy will continue to grow over the coming years, not just to meet basic needs for the growing population, but also to improve living standards and to meet the new requirements of expanding economies in the African continent. Private sector engagement is therefore key for the energy sector and this in turn allows businesses to grow. If businesses want to expand, they need energy. Farmers need energy for processing and cooling for preservation, craftsmen need energy to drive their tools, hospitals need energy for health care services, training centres need energy for computers and so on.

Moreover, the energy sector in itself generates business, such as independent power producers (IPPs) at local level that need to rely on a stable enabling environment for their investments to grow. But fostering businesses is not a goal just by itself. This energy will be greatly needed in order to create jobs for young people. The real challenge will be to provide the necessary growth in order to absorb the increase in population that Africa will face in coming decades.

These jobs can be developed only through the development of small and medium enterprises at local level. This should also be done by investing in modern energy technologies – such as renewable and energy efficiency solutions. These will generate in turn higher qualified jobs, developing the capacity and technical skills required at local level.

In addition, with its vast and untapped natural resources, Africa is an ideal place for renewable energy solutions. Private sector co-operation will be key in transforming this potential into concrete investments and generating growth at local level. Public private partnerships could be further enhanced, as they can contribute to

a conducive environment for investments, facilitate technology transfer and pilot project demonstration.

Governments from their side will have to ensure the stability of markets through reliable public policies and an unbundling framework for operational and cost-effective utilities.

In the framework of its Empowering Development initiative that was initiated at the EU Sustainable Energy for All Summit in 2012, the European Commission made an immediate effort to step up its actions in the field of energy. More than EUR 600m were allocated over the past two years in support of ending energy poverty and creating an enabling environment for growth. We have been working on 3 avenues which are already bearing fruit.

Our innovative approach to blending embodied in the successful EU-Africa Infrastructure Trust Fund (ITF) for much needed infrastructure projects, notably in generation and distribution lines. Some other projects in the context of ITF are addressing the difficulties of private investment in renewable energy generation through de-risking mechanisms and are already operational, such as the Geothermal Risk Mitigation Facility for East Africa and the Get Fit Programme in Uganda. New scalable business models for sustainable energy investments in rural and off-grid areas are promoted through topping up by EUR 20m EU of the award winning Global Energy Efficiency and Renewable Energy Fund (GEEREF).

Additionally, EUR 50m were allocated to EU – EDFIs (European Development Finance Institutions) to a risk sharing mechanism to support private project developers and other private financiers engaged in projects providing sustainable energy services. Moreover, tackling energy poverty is a specific challenge that is

addressed through specific Calls for Proposals for rural electrification. We have recently selected projects that will provide an additional 2 million people in poor rural areas with access to modern energy services.

Beyond any project co-financing however, the most crucial element for meeting our objectives is the creation of an enabling environment for private sector investments by putting in place the necessary policy and regulatory framework. In order to support our partner countries in this effort, we have established an EU Technical Assistance Facility. Fully operational since December 2013, this assistance has been deployed in more than a dozen different countries.

This effort will substantially increase under this financial framework 2014-2020. Over the next 7 years, the EU aims to allocate more than EUR 3 billion in supporting sustainable energy in our partner countries. This will, in turn, leverage investments exceeding EUR 15 billion in loans and equity investment. But we will refine our existing instruments in order to adapt them to regulatory and market realities. We will pay particular attention to productive use of energy and scaling up existing activities. We will link up with the local private sector, local sector and established social networks. We will also try to address some blind spots that so far received less attention, such as the functioning of national utilities.

Only in this comprehensive way can we – together with our all partners – achieve Sustainable Energy for All.



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