



This action is funded by the European Union

ANNEX 2

of the Commission Decision on the Annual Action Programme 2015 in favour of Liberia to be financed from the 11th European Development Fund

Action Document for the Monrovia Consolidation of Electricity Transmission and Distribution

1. Title/basic act/ CRIS number	Monrovia Consolidation of Electricity Transmission and Distribution CRIS number: 30 831 financed under the 11 th European Development Fund			
2. Zone benefiting from the action/location	West Africa, Liberia The action shall be carried out at the following location: Primarily Greater Monrovia but with support measures covering the entire country			
3. Programming document	Liberia National Indicative Programme (NIP) for the period 2014 – 2020			
4. Sector of concentration/ thematic area	Energy			
5. Amounts concerned	Total estimated cost: EUR 55 000 000 Total amount of EDF contribution EUR 55 000 000.			
6. Aid modality(ies) and implementation modality(ies)	Aid Modality: Project. Direct management: procurement of services Indirect management with the Republic of Liberia			
7. DAC code(s)	23040 Electrical Transmission and Distribution			
8. Markers (from CRIS DAC form)	General policy objective	Not targeted	Significant objective	Main objective
	Participation development/good governance	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	Aid to environment	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	Gender equality (including Women In Development)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	Trade Development	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	Reproductive, Maternal, New born and child health	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	RIO Convention markers	Not targeted	Significant objective	Main objective
	Biological diversity	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Combat desertification	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Climate change mitigation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Climate change adaptation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Global Public Goods and Challenges (GPGC) thematic flagships	NA			

SUMMARY

Energy is one of the top priorities for the Government of Liberia which understands that the access to modern energy for a major part of the Liberian population and the development of its productive (industrial) activities is a prerequisite for the achievement of its post-conflict reconstruction and economic recovery (to support 7.5% p.a. growth rates up to 2020).

The Government of Liberia has set the objective of the energy sector in its National Energy Policy (NEP, adopted in 2009). The NEP lays the foundation for the creation of an enabling environment to attract private sector capital to the energy sector, to restructure and reform energy institutions, to decentralize energy service administration, to fully utilize domestic energy resources and, most importantly, to ensure the national development and availability of sufficient, reliable, affordable and modern energy services for all Liberians; to promote rational and efficient use of energy; and to establish environmentally sound and sustainable systems of energy production, procurement, transportation, distribution and end use.

The Government of Liberia is currently developing an efficient and modern Electricity Law with the purpose to facilitate the implementation of the NEP. The Electricity Law shall establish the legal and regulatory framework for the generation, transmission, distribution and sale of electricity within the country and the import and export of the same.

In addition to that legal and regulatory framework, the Government of Liberia Ministry of Lands, Mines and Energy (MLME) has developed and adopted the most beneficial technically and economically development plan for the power sector, the Least Cost Power Development Plan, aimed to ensure the sustainable development of the electricity sector in Liberia for the coming 20 years.

The Government of Liberia has subscribed to the Sustainable Energy for All (SE4All) initiative and its objectives. The energy sector is one of the focal sectors under the 11th EDF National Indicative Programme (NIP), in line with the Agenda for Change. It should be noted that energy is a new sector of cooperation for the European Development Fund (EDF) and lessons learned from previous programmes are therefore limited. The Government of Liberia is following and applying principles of aid effectiveness set out by the Paris Declaration and the Accra Agenda for Action.

Main stakeholders of the energy sector are the MLME, the Liberian Electricity Corporation (LEC) and the Rural and Renewable Energy Agency (RREA). In terms of sector coordination, there is room for improvement especially in view of information sharing and the sector policy dialogue.

The EU intervention aims at improving the environmental and socio-economic conditions of the people of Liberia, in line with the Government of Liberia's objective to increase access to renewable energy services and to sustainable and affordable power.

The highest short term priority of the Government of Liberia for investments in the energy sector is increasing the number of connected customers in Monrovia in order to take advantage of the significant reduction in cost of electricity expected when the Mount Coffee Hydropower Plant will start producing in August 2016.

The proposed project will fund fully the EU part of the Monrovia Energy Transmission and Distribution Consolidation Programme and the related Technical Assistance to the Ministry of Lands Mines and Energy and to the Liberia Electricity Corporation.

The main objectives to be achieved under this project are: (i) system expansion and connection of new customers (about 58 000 new customers); (ii) progress towards the Government of Liberia's objective of providing electricity; (iii) contribute to the achievement of the 30% electricity access target of the population by end of 2030; (iv) reduction of technical and commercial losses; and (v) general strengthening of LEC capability.

The project will contribute to the Aid for Trade objectives of PAPED.

1 CONTEXT

1.1 Sector/Country/Regional context/Thematic area

Most of Liberia's infrastructure was destroyed or deteriorated during the years of conflict. Before its civil war (1989–2003), Liberia had a total installed capacity of 182 MW, 98% of which was located around Monrovia. The electricity sector had around 35,000 customers at that time. The hydropower plant at Mount Coffee supplied 64 MW during the wet season and about 10 MW during the dry season. Outside Monrovia there were ten small isolated power systems supplying rural areas. By the end of the civil war the power sector infrastructure, including the Mount Coffee Hydropower Plant, had been largely destroyed. The entire infrastructure for distribution of electricity was also destroyed.

Liberia has currently a population of roughly 4.19 million people (World Bank 2012). It is estimated that 76% of the population has an income of less than USD 1 a day and 52% less than USD 0.50 a day. Poverty is considerably higher in rural areas than in urban areas. The population of Monrovia is now of about 1.2 million people.

Almost 74% of Liberia's population resides in rural areas, while the remaining 26% live in and around the urban centre of Monrovia. Rural households expend a significant amount of their low incomes on inferior forms of energy such as candles, flashlights, and kerosene or oil lanterns for lighting. Higher fuel costs result from long transportation distances, fragmented delivery systems, and absence of economies of scale.

The MLME, in particular its Department of Energy, is the institution in charge of the Energy Sector, with two implementing agencies for the electricity subsector:

- the LEC with a mandate covering the entire territory of Liberia; and
- the RREA, with the mandate to promote improved access to modern energy services in the rural areas of Liberia.

The LEC, the national electricity utility, ceased operations at that time and only resumed operations in 2006 with the aim of re-establishing services in key areas of Monrovia. In July 2010, a five-year management contract financed by the Government of Norway was signed between the LEC, the MLME and Manitoba Hydro International (MHI) of Canada to improve LEC's operational/technical, administrative and financial performance and to expand the

customer base within a limited defined service area inclusive of Monrovia and its surroundings. The ultimate objective is to improve the service in such a manner that will allow LEC to supply affordable electricity to the customers. A small grid has since been rebuilt in Monrovia, with EU support amongst others, and is supplied with electricity by diesel generators. Installed generation capacity has steadily increased to 22.6 MW. All power stations are in or near Monrovia. With the exception of Gbarnga, Bong County, there is no generation capacity outside of Monrovia beyond privately-owned generators and scattered donor-funded pilot projects.

At the time being the Government of Liberia does not have the capacity to supply electricity to most of the economic sector, which is essential to reach the goal of middle-income status. Inadequate electricity remains a crippling constraint for private sector and particularly industrial development. The total number of customers connected to the grid as of end of June 2015, is 33 000 and the peak demand is about 10 MW. About 7,670 are low income customers (more than 36%) with an average peak load per customer now estimated at just 0.06 kW.

Donors/Development Partners and the Government of Liberia financed the rehabilitation of the grid in and around Monrovia, through the support of the Government of Liberia, the Government of Norway, USAID, EU, the African Development Bank (AfDB), the World Bank (WB) and others, and allocated funds to undertake specific interventions to address challenges of the power sector value chain as well as increase access.

Key investments in the energy sector include rehabilitating the 80 MW Mount Coffee Hydropower Plant to start production at the end of 2016, installing four heavy fuel oil plants totaling 48MW (10MW by December 2015; 10MW by March 2016; 18MW by June 2016; and a recent additional 10MW HFO by mid – 2017 financed by the Arab Bank for Economic Development in Africa – BADEA), improving the electricity transmission and distribution network, and developing a regional 225 kV transmission line (CLSG).

1.1.1 Public Policy Assessment and EU Policy Framework

The NEP, endorsed in May 2009, is sound, fully in line with the EU Development policies and fully integrated with the regional framework in energy led by the West African Power Pool (WAPP). The NEP assumes the implementation of proposed energy sector reforms, but it has not yet been fully implemented and there is no national energy bill.

The NEP sets out a framework for the longer-term goals, priorities and approaches needed in the sector ultimately aiming at transforming the energy sector to become one of Liberia's most dynamic sectors and investment destinations so as to advance Liberia's broader development targets. The level of ownership of the policy framework is high, but what is currently missing is an active implementation approach due mainly to a lack of capacities.

One policy objective is to ensure affordability through least-cost. The Government is committed to the provision of energy services on a full cost-recovery basis to those who are able to pay, and on a targeted, subsidized basis to those who can only afford to pay a portion. Another policy objective is to establish an adequate delivery process for energy products and services through a public-private partnership where investment in new infrastructure and services is provided by the private sector to the greatest extent possible, with the public sector providing the supporting policy environment and regulatory oversight.

The NEP aims at private sector growth and socio-economic transformation and incorporates prioritization of end-users for electric grid connections and promoting more cost effective off-grid energy access business models using Private Public Partnership procurement frameworks and methods that offer value for money. It gives a clear political basis for the quick adoption of narrowly focused laws and regulations. There is a need to progressively diversify the energy supply; shifting from biomass in the overall energy mix and using renewable energy sources to meet the future electricity generation and supply targets.

There is as yet no energy strategy, even though a bill was passed beginning of 2014 (awaited since 2011) to establish the RREA, an autonomous agency with the aim to: (i) promote improved access to modern energy services in the rural areas of Liberia; (ii) facilitate and accelerate the economic transformation of rural Liberia by promoting the development and supply of modern energy products and services to rural areas with an emphasis on locally available renewable resources; (iii) introduce and promote the enactment of regulations and policies in the exercise of the functions of the Agency; and (iv) administer, secure, enforce, design and execute policies, strategies, plans and programmes relating directly and indirectly to the functioning, growth and development of the rural energy sector. The RREA is in need of financial support and capacity building to efficiently fulfil its mandate and carry out its missions and functions. The European Union plans to use EUR 45 000 000 to support rural electrification beginning 2016 and to finance the development of a rural energy master plan being undertaken by the RREA.

In February 2013 Liberia was officially admitted as the 8th pilot country from a list of reserved countries under consideration for implementation of the programme “Scaling-Up Renewable Energy in Low Income Countries” (SREP). Consequently an investment plan for scaling-up renewable energy in Liberia was developed and subsequently endorsed by the Climate Investment Trust Fund Committee, with an allocation of USD 50 000 000 for Liberia under the SREP.

The Liberian legislative framework on energy is weak. There is a crucial need to develop and adopt an efficient and modern Electricity Law with the purpose to facilitate the implementation of the NEP. The Electricity Law shall establish the legal and regulatory framework for the creation of an enabling environment to attract private sector capital to the energy sector, for the generation, transmission, distribution and sale of electricity within the country and the import and export of the same.

With the Donors’ support, an Energy Law has been drafted and presented to MLME, however, as of yet, there has not been a significant move from policy to legislation. The lack of implementation is viewed as an impediment that must be overcome in order for this adequately written policy to become effective. The establishment of an independent, transparent regulatory process will be essential to creating an investment environment that is conducive to increased private sector involvement in the energy sector.

In summary, the NEP and the on-going legal development, even though containing gaps especially in the area of biomass, are considered to be overall credible and relevant supporting directly the objectives of poverty reduction, sustainable and inclusive growth, and democratic governance. The Government of Liberia is determined to raise funds externally, through private sector and Development Partners or commit own resources, which includes mainly lending, to this priority sector. The challenge for the Government is to translate the policy into realistic strategies and the strategy framework into concrete actions and it is evident that

implementation is lagging behind, which is to a large extent linked to predictability of funds and capacity issues.

1.1.2 Stakeholder analysis

Main stakeholders of the energy sector are the MLME, the LEC and the RREA.

The MLME has an awkward organization structure that inhibits its operational efficiency especially in its energy oversight responsibility. Another organization structure was proposed in the NEP but not implemented. The Ministry experiences a lack of competences and resources and capacity building is highly needed.

The WB-funded MLME Mandate and Functional Review report of October 2011 and the Gap Analysis completed in May 2013 with EU funding both identified the need to provide significant additional technical assistance effort to reorganize and make the Department of Energy (MLME) efficient in order to address the current challenges of the electricity sector.

A restructuration and a capacity building programme was proposed by EU technical assistance under the SE4All Technical Assistance Facility in May 2014 and adopted by the Minister but not implemented yet due to the Ebola crisis. The objective of this technical assistance is to improve the functionality, efficiency and effectiveness of the MLME Department of Energy and in particular the Bureau of Electricity and Renewable Energy (BERE) to be created

The LEC is a public utility with a mandate to generate, transmit and distribute electric power throughout the nation. To improve LEC operations, the Government of Liberia decided to bring in outside expertise. The decision was made to select a management contractor who would bring the LEC to a level of full functionality as a power utility with fully trained staff, and build up the customer base to a target level of approximately 33,000 customers within a 5-year horizon. Competitive international bidding led to the selection of Manitoba Hydro International (MHI) as management contractor for LEC. MHI began operation in July 2010 and has been able to quickly improve LEC operations. MHI will continue its service until end of 2016, former planned date of commissioning of Mount Coffee Hydropower Plant. Today the MHI management contract is limited to the Monrovia area.

The LEC's development strategy is fully endorsed by Government of Liberia.

In mid-2013, the LEC's board has set a single tariff of USD 0.51/kWh. The tariff is determined according to a revenue requirement approach, which considers the total revenues required to meet all expenses and capital costs of the utility. The tariff is calculated on a quarterly basis and is currently of USD 0.52/kWh. The high costs are explained by the small scale of the LEC's current operations, the use of high-cost diesel as the sole source of power supply and the integration of the high percentage of technical and nontechnical losses in the tariff.

The LEC's capacity and competence is very low even after having implemented a training programme which shall be completed by 2015-2016 (out of 233 employees, 57% have no or basic compulsory education). The average employment time is less than 3 years, and 55% were employed as late as in 2009. The LEC's main focus for the years to come will have to be improvements in the performance of the utility increasing credibility (quality and cost of supply) and its financial situation. A tariff study was launched by the EU technical assistance under the SE4All Technical Assistance Facility in June 2015 to identify the impact of the

planned investments on the tariff to the end-users and to propose solutions to improve the financial sustainability of the LEC in the long term.

The main target group is the general population of Monrovia who would like to obtain electricity from the grid and the LEC. Customers and all businesses will greatly benefit from much cheaper energy than what they are paying at present to the Independent Power Producers (IPPs) or in self-generation. Vulnerable groups and everybody already connected will benefit from a more reliable and eventually cheaper energy, which will be made possible by an enlargement of the customer base. The end user survey has found that there is significant willingness to pay. Full local commitment /ownership of project ideas exists in the areas already connected to the grid and it is reasonable to expect the same to be the case for the new connections.

In terms of sector coordination, there is room for improvement especially in view of information sharing and the sector policy dialogue.

1.1.3 Priority areas for support/problem analysis

The Government of Liberia has recently reconfirmed that its short term priorities for investment in the energy sector are four transmission and distribution projects. Two of these have obtained co-funding approval from the SE4all window of the Infrastructure Trust Fund on 12/12/2013. One is funded by the WB. The project proposed here addresses the last remaining programme on the priority list.

The LEC has a commitment and enough funding to connect 33 000 customers by June 2015. At 5 people per connection, this represents around 14% of the population of Monrovia estimated at around 1.2 million and is far from the Liberian Energy Policy's target of 30% of the urban population connected to the electricity network by 2015.

The LEC is still unable to generate sufficient income to finance new investments and all infrastructure to-date has been donor-funded. Donors have targeted connections of the most marginalized and poor areas of the city who can pay only very little, if any, of the electrical energy made available to them, which results in an unbalanced and unsustainable customer base for the LEC.

Private customers of slightly better economic conditions and the micro, small and medium enterprises are longing to be connected to the LEC grid and are very much willing to pay the present rate of USD 0.56/kWh (Tax included), since the alternative options available to them cost around USD 1.2 /kWh if they purchase from the so-called IPPs or USD 1.9/kWh if they generate the power with small generating sets (see page 86 of the Evaluation report mentioned below).

The LEC needs to increase its customer base to around 90 000 customers (about 30% access to electricity within Monrovia) to absorb the increased quantity and much cheaper energy expected to be generated by Mount Coffee from December 2016 onwards. Electricity Transmission and Distribution (T&D) and connection funding is particularly important now with the need to bring load up to 60-80 MW by the time Mount Coffee comes on line. This will provide a connected load of just over 50 MW, which is still short of that needed to fully absorb Mount Coffee's wet season output.

The proposed project will reinforce the Transmission and Distribution Network in Monrovia, connect some 58 000 additional customers thereby fully achieving the previously mentioned

target and is fully in line with the NIP sector objective "Increase affordable access to the energy grid in population and production centres, including to women".

An in-depth end-user survey and stakeholder analysis was carried out and is documented in the Evaluation report mentioned below.

Challenges for the Government of Liberia and LEC are the high cost of generation (currently mainly thermal), purchasing power and low average consumption rates of households, which creates problems and may induce financial instability of LEC when designing appropriate tariffs.

Currently the transmission and distribution grid has a high level of system losses, which makes both expansion and upgrade necessary. Under the existing management contract with MHI, losses in Liberia's electricity grid are targeted to 12% of electricity distributed - this appears extremely ambitious, given the current average level of 32% (Board Consultant's Review Report 2015 June). The project aims contributing to increase of energy efficiency in the national electricity grid.

2 RISKS AND ASSUMPTIONS

Risks	Level	Mitigating measures
Political – Legal – Institutional Weak civil society and weak legal and institutional frameworks cannot fulfil their oversight and control function. The low capability of the Government of Liberia to change quickly the social and economic environment added to the Ebola outbreak and its spill-over effects which have slowed growth in 2014 to an estimated 1.8% as well as the household income could induce possible recrudescence of social conflicts.	M	The Minister of Finance has stressed the highest priority for future funding to the energy sector given by Government to transmission and distribution projects. Institutional and legal reforms; development of regulations; continued support to civil society; continued political dialogue. UN led peace and security cooperation framework.
Macroeconomic Economy remains vulnerable due to high dependence on export of commodities (reduced exports) and raw materials (minerals, rubber); the additional stigma of the Ebola crisis reducing potential investment; limited foreign exchange resources.	M	Resumption of energy infrastructure projects as well as accompanying governance improvements to ensure sustainability will help address binding constraints to growth. Improving service provision to rural areas will support the long-term growth and stability of Liberia. However, moving towards decentralisation will take many years, due to weak infrastructure, low local capacity and the high financial costs. Continue promoting regional integration. Support development of high value agricultural goods.
Public policy	M	New Policy support instrument (PSI)

Due to high aid dependency a potential reduction of aid could influence the delivery of public policies; insufficient land especially in Monrovia and growing population may lead to certain exclusion.		programme with the International Monetary Fund (IMF) focuses on improvement of tax collection and tax administration.
Human Resources MLME and LEC institutions are weak due to the low level of available capacities. Both structures shall strengthen their project management capacities of the sector and shall keep adequate qualified personnel, including for the monitoring of the project.	M	Further strengthening of current capacities with the support of the SE4All Technical Assistance Facility (TAF): the proposed capacity building reinforcement of MLME; the current tariff study as well as a proposal to increase the capacities of LEC (twinning contract with a Western electricity utility). Common monitoring for the entire work. LEC will be responsible for the project management.
Coordination of the Donors' intervention Perceived risk of lack of coordination between the donors' interventions in the energy sector and lack of communication between LEC and the donors' community, involving overlaps, gaps in the sequencing of the project implementation resulting in lower quality electrical services.	M	Reinforcement of the Donors' energy dialogue. Donors works to scale up the support to the sector reform through a coordinated effort.
Corruption and Fraud Perceived level of corruption moderate but there are cases of corruption in service delivery and procurement.	M	Government continues on determined action against corruption.
Assumptions		
<ul style="list-style-type: none"> ▪ The political will to continue the process to reform the institutional, legal and regulatory frameworks of the energy sector. ▪ The continuation of government efforts towards the financial balance of the sector and in particular of LEC. ▪ The organization and leadership of the sectoral dialogue to ensure the conduct of energy programmes. 		

All risk categories show a moderate level. In summary, the potential benefits of the project clearly outweigh the risks.

3 LESSONS LEARNT, COMPLEMENTARITY AND CROSS-CUTTING ISSUES

3.1 Lessons learnt

It should be noted that energy is a new sector for the EDF in Liberia and lessons learned are therefore limited to observations on the overall sector developments and participation in the sector dialogue rather than resulting evaluation of EDF projects.

Nevertheless, the European Commission intervened in the energy sector with emergency reconstruction, reinforcement and electrification projects. An evaluation of these projects was conducted in 2014 to learn from the different actions:

- The geographic dispersion of interventions makes it very difficult to monitor work by the Delegation and the services of the National Authorising Officer (NAO) in an unstable unsecured environment;
- In terms of implementation of electrification works, the separation between procurement and construction works (with separate supply contracts and works) leads to inconsistencies, lack of clarity in the responsibilities of each Contractor and delays in the implementation;
- An independent monitoring mission (supervision) is necessary to support the Delegation and the NAO in their role as auditors;
- Regular technical audits shall be carried out to ensure that each actor (enterprise, monitoring mission, contractor, contracting authority, donors) plays its full role.

As identified in the evaluation report on EU funding of the energy sector in Liberia, dated August 2012 and available under:

http://eeas.europa.eu/delegations/liberia/projects/evaluation/index_en.htm, the EU-funded Monrovia Electricity Grid Rehabilitation Project, which was completed in 2012, was relevant, effective, efficient, with positive impacts and good sustainability. It was found to be coherent and consistent.

The implementation modality – project approach via a single, large contract – proved to be effective and greatly contributed to the re-starting of the operations of the Liberia Electricity Corporation. It is proposed to use the same approach for the proposed project.

The number of electricity connections has grown very rapidly, from 2 500 in 2009 to 21 119 customers by end of February 2014, proving that there is significant absorption capacity of funding in the Transmission and Distribution sector.

3.2 Complementarity, synergy and donor coordination

To ensure the sustainability of the project and to accompany sector reforms necessary to ensure the financial stability of the sector, the EU has started to mobilize the SE4All Technical Assistance Facility beginning of 2014, which led to the following actions:

- Proposed restructuring and capacity building of the Department of Energy, MLME, and creation of the Bureau for Electricity and Renewable Energies (BERE) including a capacity building programme to develop and implement electricity regulation (implementation included in this project);
- Long term assessment of the power system in the Monrovia area (transmission and distribution networks);
- A Tariff Study with the overall objective to determine the optimal electricity tariff resulting from future investments in generation, transmission and distribution of electricity in Liberia to satisfy the long term demand and to achieve the SE4All objectives, while allowing the LEC to achieve and sustain a sound financial position.

The EU Delegation chairs the Energy Donors Dialogues, which are held at least quarterly and during which very open and frank exchange of information takes place, efficiencies and complementarities are favoured and there is a shared commitment to avoid duplications. The Donors matrix is maintained and updated by the EU Delegation and is one of the annexes of this Action Document.

The EU has funded the initial Electricity Grid Rehabilitation in Monrovia between 2008 and 2011 and in June 2012 48% of the LEC's assets were recorded in LEC books as funded by the EU.

The following Energy Facility contracts are ongoing: 196 008 "Cross border electrification of rural communities in Liberia from Côte d'Ivoire"; 267 810 "Bring electricity to all public sector Health Facilities who have none"; 267 844 "Support to the Rural and Renewable Energy Agency", 353 422 "Light up Liberia", 353 458 "Light up our Futures".

The donors active in the Energy Sector are, in order of grant contribution: Norway, German Development Bank (KfW - Kreditanstalt für Wiederaufbau), European Commission, Japan International Cooperation Agency (JICA), United States Agency for International Development (USAID). The banks presently providing reimbursable credits and loans to the Energy sector are the European Investment Bank (EIB), the World Bank (WB), the African Development Bank (AfDB) and The Arab Bank for Economic Development in Africa (BADEA).

EU and USAID have funded high speed Diesel generating plants which, due to the high cost of the fuel generate electricity at a cost of 38 US\$/kWh. JICA, the WB and the Government have funded a total of 38 MW of Heavy Fuel Oil generating plants, whose construction started end of 2013, which will generate at some 30% less. Norway, KfW and the EIB are co-funding the rehabilitation of the Mt Coffee Hydro Power Plant which is scheduled to generate from August 2016 onwards 66 MW at 6 US\$/kWh making electricity significantly more affordable. It is expected that at that point in time demand will grow very rapidly.

All donors active in the Sector are providing Technical Assistance (TA) and Capacity Building support to the Sector. The EU has started 15/01/2014 a very significant TA support to the Sector under the TA Facility of SE4all.

The LEC has a very robust capacity building programme for its staff, which is funded by Norway and the World Bank and includes both a Management Contract until the end of 2016 and a TA to the chair of the board of the company.

Generally, the sector partner dialogue on the technical level functions reasonably well in the energy sector. However, there is clearly room for improvement especially in view of information sharing, transparency, coordination and communication and the sector policy dialogue, to which the Government of Liberia is committed.

3.3 Cross-cutting issues

The following crosscutting issues in the European Consensus on Development are specifically addressed by the present project which has the objective to increase access to electricity:

- *Environmental sustainability*: this project contributes to the mitigation of climate change by limiting anthropogenic emissions of greenhouse gases through the use of electricity produced by the Mount Coffee Hydropower Plant which is scheduled to resume operation in August 2016, thus substituting the energy produced from thermal diesel generators for lighting and other domestic activities or avoiding to use charcoal, kerosene or other environmentally much less sustainable sources of energy;

- *Good governance*: the project aims to improve the governance of the energy sector in particular by contributing to the preparation (drafting) of the electricity regulations and the development of strategy documents;
- *Rights of the child*: having the chance to study at night in a well-lit environment facilitates education, which is one of the main rights of the child;
- *Gender equality*: housework is traditionally carried out by the female members of the family; having electricity at home makes house chores easier and leaves more time for other activities, enabling more equality to women. Access to electricity represents also a chance for students to read and study after sunset, which implies also a gender positive impact towards education of young girls. Moreover, security is improved and incidence of rape/sexual violence can be decreased; the participation of women (and private bodies or companies with female representation) in the project activities (training, awareness, capacity building, etc.) will be stimulated. The project will require experience in "gender equity" of the technical support team; require compliance with International Labour Organisation (ILO) international standards and a code of conduct for staff on site by contractors; develop awareness of gender issues in the various training programmes and incorporate disaggregated M / F statistics in relevant databases.

4 DESCRIPTION OF THE ACTION

4.1 Objectives/results

As defined in the National Indicative Programme (NIP), the project aims to contribute to the recovery of the electricity sector in Liberia and to address challenges to sustainable energy security in order to provide the population in the Monrovia area with quality and least-cost energy supplies.

The project specific objectives and expected results are as follows:

- a. Access to electricity is increased in the Monrovia area and in the area of intervention of the project in particular.
 - The number of subscribers is increased, through network expansion works and customers' connection;
 - Solutions to connect low income customers and reduce their impact on the financial sustainability of LEC are proposed and implemented;
 - Improved long-term access.
- b. The electricity distribution system in the area of intervention area of the project is optimized and demand is met including industrial and big commercial customers, through an upgrade of the existing network.
 - The quality of service is improved (reduction of unserved energy and minimisation of the average time of loss of supply);
 - Technical and non-technical (commercial) losses in the distribution system are reduced.
- c. The institutional and regulatory framework to attract the private sector participation, to develop renewable energy and to improve energy efficiency, is developed.
 - the procedures for collection, processing and data management are established and statistics are regularly available and updated (energy balance, analysis of demand by consumer type, consumer surveys, analysis of load curves);
 - the Electricity Law and its implementing regulations are developed and adopted;
 - the institutional and regulatory framework allows private sector participation in segments subject to state monopoly activities;

- the Transmission and Distribution Grid Codes as well as the national Technical Standards are developed and adopted;
 - Energy Efficiency (EE) and Renewable Energy (RE) Strategies are developed and adopted;
 - a framework law for EE / RE and its implementing regulations are developed and adopted;
 - the Energy Efficiency Code in buildings is developed and adopted;
 - the regulatory, tariff and contractual framework to encourage energy efficiency investment in industry and buildings, as well as in production of electricity from by-products of agro-industries and urban waste, from hydroelectricity and solar power, is defined.
- d. The identification of rural electrification projects to be used as initial inputs for the intervention of EU in rural electrification and renewable energies development in Liberia.

The main indicators for monitoring the achievement of results of the project are:

- the number of kilometres of line high, medium and low voltage (HV, MV and LV);
- the number of substations (main HV/MV, MV/LV);
- the potential number of connections that the project will result in the targeted areas;
- the number of domestic customers;
- the electricity access rate,
- the level of technical and non-technical losses;
- the average time of outage;
- the total unserved energy;
- regularly available stats and updates;
- Electricity Law and number of implanting regulations adopted;
- Transmission and Distribution Codes and Technical Standards adopted;
- EE /RE Strategies adopted;
- Energy Efficiency Code for buildings adopted.
- Rural electrification projects identified.

Objectives 2 and 3 will contribute to the Aid for Trade strategic axes within PAPED.

4.2 Main activities

- 1 Monrovia Consolidation – Reinforcement and extension works of distribution network inside and around Monrovia in particular:
 - Reinforcement:
 - Reinforcement of existing HV/MV (66/22kV) substations;
 - Reinforcement and restructuring of the existing HV (66kV) transmission network;
 - Creation of one (1) 66/22kV substation at Congo Town;
 - Reinforcement of 23 big customers in Monrovia;
 - Extension of the HV/MV/LV (66/22 or 33/0.4kV) networks:
 - Creation of new HV, MV and LV feeders;
 - Creation of new MV/LV distribution substations;
 - Connection of about 58 000 new customers.

- 2 Institutional Capacity Building - Technical Assistance to the Bureau of Electricity and Renewable Energies (BERE)-Ministry of Lands, Mines and Energy MLME – Support for the governance of the sector by creating an adequate institutional, legal, regulatory, technical and financial framework. In particular:
 - Support to the establishment of the BERE within MLME;
 - Support to the establishment of procedures for collecting, processing, management update and publication of data relating to the energy sector;
 - Support to the finalization of the Electricity Law and the development and implementation of its related regulations;
 - Support for the establishment of the transmission and distribution grid codes and the national technical standards;
 - Support to the definition of EE and RE policies and regulations that will facilitate private sector participation in business segments subject of state monopoly and encourage investment in this sector;
 - Energy policy: EE / RE strategies by economic sector, framework laws, implementing regulations and tariff regulations;
 - Economic policy: taxation, imports;
 - Technical Regulations, service and environmental quality;
 - Licensing and Contracts: production and distribution, concession plans, purchased power agreements;
 - Financial supporting plans / funding mechanisms.
- 3 Identification of rural electrification projects: to serve as an initial input for the EU intervention in rural electrification and renewable energies development in Liberia.

4.3 Intervention logic

Considering the fragile context of the energy sector in Liberia and the necessity to increase rapidly the number of connections in the Monrovia area, the EU intervention aims to directly increase access to energy through network extension works and to improve governance of the sector so as to create a private sector enabling environment.

The completion of the works requires a good institutional and a clear collaborative framework to be established between the major parties, i.e. EU and LEC. The presence of the Sustainable Energy for All (SE4All) Technical Assistance Facility (TAF) to support the project with a resident based at BERE (MLME) could facilitate communication and an early identification of problems. The definition and adoption of working methods and a project management structure in charge of the project will be another key element in the success. This project management structure will be composed of representatives of EU, the Liberian Electricity Corporation (LEC) and MLME.

Finally, the effective improvement of the investment framework relies, beyond institutional recommendations and the legislative arsenal, on a strong apolitical will to implement the recommended changes advocated and on the general political context.

5 IMPLEMENTATION

5.1 Financing agreement

In order to implement this action, it is foreseen to conclude a financing agreement with the partner country, referred to in Article 17 of Annex IV to the ACP-EU Partnership Agreement.

5.2 Indicative implementation period

The indicative operational implementation period of this action, during which the activities described in section 4.2 will be carried out and the corresponding contracts and agreements implemented, is 60 months from the date of entry into force of the financing agreement.

Extensions of the implementation period may be agreed by the Commission's authorising officer responsible by amending this decision and the relevant contracts and agreements; such amendments to this decision constitute non-substantial amendment in the sense of Article 9(4) of Regulation (EU) No 2015/322.

5.3 Implementation of the budget support component

Not applicable.

5.4 Implementation modalities

Several implementation methods are planned:

- Works: indirect management with the beneficiary country.
- Services including supervision of works; technical assistance for the institutional and legal component: indirect management with the beneficiary country.
- Services including tender evaluation and start-up support; works technical audit; identification of rural projects: direct management.
- Evaluation, Audits and Visibility: direct management.

5.4.1 Grants: *(none foreseen)*

5.4.2 Grant: *direct award (none foreseen)*

5.4.3 Procurement *(direct management)*

Subject in generic terms, if possible	Type (works, supplies, services)	Indicative number of contracts	Indicative trimester of launch of the procedure
Tender evaluation and start-up support	Services	1	Q1 – 2016
Technical audit	Services	1	Q4 – 2016
Identification of rural projects	Services	1	Q4 - 2016
Evaluations	Services	1	Q3 – 2017
Communication & Visibility	Services	1	Q3 – 2016

5.4.4 Indirect management with a Member State, third donor country, EU specialised (traditional/regulatory) agency, international organisation (none foreseen)

5.4.5 Indirect management with the partner country

The components corresponding to the extension works of the networks, supervision of works and technical assistance to MLME (institutional capacity reinforcement) with the objective of reinforcing and extending the distribution networks inside and around Monrovia (58 000 new connections) and improving the governance of the sector by creating an adequate institutional, legal, regulatory, technical and financial framework, will be implemented in indirect management with Liberia in accordance with Article 58(1)(c) of the Regulation (EU, Euratom) No 966/2012 applicable by virtue of Article 17 of Regulation (EU) 2015/323 according to the following modalities:

Liberia will act as the contracting authority for the procurement and grant procedures. The Commission will control ex ante all the procurement and grant procedures.

Payments are executed by the Commission.

The financial contribution does not cover the ordinary operating costs incurred under the programme estimates.

In accordance with Article 190(2)(b) of Regulation (EU, Euratom) No 966/2012 and Article 262(3) of Delegated Regulation (EU) No 1268/2012 applicable by virtue of Article 36 of Regulation (EU) 2015/323 and Article 19c(1) of Annex IV to the ACP-EU Partnership Agreement, Liberia shall apply procurement rules of Chapter 3 of Title IV of Part Two of Regulation (EU, Euratom) No 966/2012. These rules, as well as rules on grant procedures in accordance with Article 193 of Regulation (EU, Euratom) No 966/2012 applicable by virtue of Article 17 of Regulation (EU) 2015/323 will be laid down in the financing agreement concluded with Liberia.

5.4.6 Contribution to existing Regional Blending Facility (Not Applicable)

5.4.7 Changes from indirect to direct management mode due to exceptional circumstances (one alternative second option)

No changes are foreseen.

5.5 Scope of geographical eligibility for procurement and grants

The geographical eligibility in terms of place of establishment for participating in procurement and grant award procedures and in terms of origin of supplies purchased as established in the basic act and set out in the relevant contractual documents shall apply.

The Commission's authorising officer responsible may extend the geographical eligibility in accordance with Article 22(1)(b) of Annex IV to the ACP-EU Partnership Agreement on the basis of urgency or of unavailability of products and services in the markets of the countries concerned, or in other duly substantiated cases where the eligibility rules would make the realisation of this action impossible or exceedingly difficult.

5.6 Indicative budget

Components	Implementation Modalities	Indicative Budget (EDF)	Indicative third party contribution, in currency identified
1 – Monrovia Consolidation		51.480.000	-
<i>1.1 - Reinforcement and extension works for the transmission and distribution networks (Indirect management).</i>	<i>Work Contracts (Modality 5.4.1.5)</i>	<i>48.920.000</i>	
<i>1.2 - Supervision of works (Indirect management)</i>	<i>Service Contract (Modality 5.4.1.5)</i>	<i>1.960.000</i>	
<i>1.3 - Tender evaluation & start-up support (Direct management)</i>	<i>Service Contract (Modality 5.4.1.3)</i>	<i>300.000</i>	
<i>1.4 - Technical audits of works (Direct management)</i>	<i>Service Contract (Modality 5.4.1.3)</i>	<i>300.000</i>	
2 – Institutional Capacity Building – Technical Assistance to BERE (MLME) (Indirect management)	<i>Service Contract (Modality 5.4.1.5)</i>	3.000.000	-
3 – Rural and Renewable Energy Projects Identification (Direct management)	<i>Service Contract (Modality 5.4.1.3)</i>	300.000	
4 – Others		220.000	
<i>4.1 - Evaluation & Audit (Direct management)</i>	<i>Service Contract (Modality 5.4.1.3)</i>	<i>200.000</i>	
<i>4.2 - Communication & Visibility (Direct management)</i>	<i>Service Contract (Modality 5.4.1.3)</i>	<i>20.000</i>	
TOTAL		55.000.000	-

5.7 Organisational set-up and responsibilities

5.7.1 Steering Committee

A steering committee will supervise the project and will essentially play a role of information, coordination and possibly alert. It will meet at least once a year from the signing of the Financing Agreement and will include:

- a representative of the EDF National Authorising Officer,
- one or more representatives of the Ministry of Lands, Mines and Energy,
- one or more representatives of the Ministry of Environment, Housing, & Urban Development,
- one or more representatives of the technical assistance responsible for the supervision of works,
- one or more representatives of LEC,
- a representative of the EU Delegation.

The composition and procedures of the Steering Committee will be set up to avoid duplication between consultative structures and foster the convergence and the principles of the Paris Declaration on harmonization and coordination of aid.

5.7.2 *Technical Committee*

A technical committee will be established to ensure continuous monitoring of the project. It will meet at least four times a year after the signing of the first contract funded under the project and will include:

- a representative of the EDF National Authorising Officer,
- one or more representatives of the MLME,
- one or more representatives of the technical assistance responsible for the supervision of works,
- one or more representatives of the LEC,
- a representative of the EU Delegation.

5.7.3 *Participation Modalities*

The Parties agree that donors may request to attend the meetings of the above mentioned committees directly or via video conference, which will be organized with the technical support of the Lead wherever possible.

5.8 Performance monitoring and reporting

The day-to-day technical and financial monitoring of the implementation of this action will be a continuous process and part of the implementing partner's responsibilities. To this aim, the implementing partner shall establish a permanent internal, technical and financial monitoring system for the action and elaborate regular progress reports (not less than annual) and final reports. Every report shall provide an accurate account of implementation of the action, difficulties encountered, changes introduced, as well as the degree of achievement of its results (outputs and direct outcomes) as measured by corresponding indicators, using as reference the logframe matrix. The report shall be laid out in such a way as to allow monitoring of the means envisaged and employed and of the budget details for the action. The final report, narrative and financial, will cover the entire period of the action implementation.

The Commission may undertake additional project monitoring visits both through its own staff and through independent consultants recruited directly by the Commission for independent monitoring reviews (or recruited by the responsible agent contracted by the Commission for implementing such reviews).

5.9 Evaluation

Having regard to the importance of the action, mid-term and final evaluations will be carried out for this action or its components via independent consultants.

The mid-term evaluation will be carried out for problem solving.

The final evaluation will be carried out for accountability and learning purposes at various levels (including for policy revision).

The Commission shall inform the implementing partner at least 30 days in advance of the dates foreseen for the evaluation missions. The implementing partner shall collaborate efficiently and effectively with the evaluation experts, and inter alia provide them with all necessary information and documentation, as well as access to the project premises and activities.

The evaluation reports shall be shared with the partner country and other key stakeholders. The implementing partner and the Commission shall analyse the conclusions and recommendations of the evaluations and, where appropriate, in agreement with the partner country, jointly decide on the follow-up actions to be taken and any adjustments necessary, including, if indicated, the reorientation of the project.

Indicatively, one contract for evaluation services shall be concluded under a framework contract in the second quarter of 2016.

5.10 Audit

Without prejudice to the obligations applicable to contracts concluded for the implementation of this action, the Commission may, on the basis of a risk assessment, contract independent audits or expenditure verification assignments for one or several contracts or agreements.

Indicatively, one contract for audit services shall be concluded under a framework contract in the second quarter of 2016.

5.11 Communication and visibility

Communication and visibility of the EU is a legal obligation for all external actions funded by the EU.

This action shall contain communication and visibility measures which shall be based on a specific Communication and Visibility Plan of the Action, to be elaborated at the start of implementation and supported with the budget indicated in section 5.6 above.

In terms of legal obligations on communication and visibility, the measures shall be implemented by the Commission, the partner country, contractors, grant beneficiaries and/or entrusted entities. Appropriate contractual obligations shall be included in, respectively, the financing agreement, procurement and grant contracts, and delegation agreements.

The Communication and Visibility Manual for European Union External Action shall be used to establish the Communication and Visibility Plan of the Action and the appropriate contractual obligations.

Indicatively, one contract for visibility services shall be concluded in the third quarter of 2016.

APPENDIX - INDICATIVE LOGFRAME MATRIX

The activities, the expected outputs and all the indicators, targets and baselines included in the logframe matrix are indicative and may be updated during the implementation of the action without an amendment to the financing decision. The indicative logframe matrix will evolve during the lifetime of the action: new lines will be added for listing the activities as well as new columns for intermediary targets (milestones) when it is relevant and for reporting purpose on the achievement of results as measured by indicators.

	Intervention logic	Indicators	Baselines (incl. reference year)	Targets (incl. reference year)	Sources and means of verification	Assumptions
Overall objective: Impact	To contribute to the recovery of the electricity sector in Liberia and to achieve sustainable energy security in order to provide the populations with quality and least-cost energy.					
Specific objective(s): Outcome(s)	Access to electricity has increased throughout the territory and in the project intervention areas in particular.	<ul style="list-style-type: none"> - Total number of new customers - km of distribution lines - km of transmission lines - Distribution reinforcement Mega Volt Ampere (MVA) - Transmission reinforcement (MVA) 	<ul style="list-style-type: none"> - 33 000 (6/2015) - To be completed (* by LEC for version to be included in the Financing Agreement) 	<ul style="list-style-type: none"> + 58 000 (2019) + 170 km (2019) + 9 km (2017) + 65 MVA + 40 MVA 	Statistics from LEC & MLME	
Outputs	The electricity distribution system in the area of intervention of the project is optimized and demand (including big customers & industrials) is satisfied, through an upgrade of the existing network.	<ul style="list-style-type: none"> - Average time of loss of supply - Level of technical and non-technical losses on the distribution networks 	<ul style="list-style-type: none"> - To be completed (*) - To be completed (*) 	<ul style="list-style-type: none"> - To be completed (*) - To be completed (*) 	Statistics from LEC & MLME	
Outputs	The private sector enabling environment is in place (institutional and regulatory framework attracts the private investments).	<ul style="list-style-type: none"> - The Electricity Law is finalized and adopted. - Secondary legislation (regulations) is in place. - The Transmission and Distribution Grid Codes and national Technical Standards have been established and adopted. 	<ul style="list-style-type: none"> - Draft under revision - None - None 	<ul style="list-style-type: none"> - Adopted in 2016. - Adopted in 2017. - Adopted in 2018. 	Official publication, MLME	

Outputs	<p>The institutional and regulatory framework favourable to the development of renewable energy and energy efficiency exists.</p>	<ul style="list-style-type: none"> - Adoption of a strategy and an action plan proposing financial instruments and standards adopted by MLME. - Statistics exist: energy balance, analysis of demand by type of consumer, consumer surveys, analysis of load curves. - Regularity of data update. - Existence of EE/RE strategies. - Existence of an EE / RE framework law and implementing legislation. 	<ul style="list-style-type: none"> - None - None - None - None - None 	<ul style="list-style-type: none"> - Adopted in 2017. - End of 2016. - By 2018. - By 2017. - By 2018. 	Official publication, MLME	
Outputs	<p>The energy efficiency code for buildings is developed and adopted.</p> <p>The regulatory, tariff and contractual framework to encourage investment in energy efficiency in industry and buildings as well as production of electricity from by-products of agro-industries, urban waste, hydropower and solar power, is defined.</p>	<ul style="list-style-type: none"> - Existence of the energy efficiency Code for buildings. - Volume of energy efficiency investments in industry and in buildings. - % of electricity from agro-industries, urban waste, hydro and solar power, is defined. 	<ul style="list-style-type: none"> - None - None - None 	<ul style="list-style-type: none"> - Adopted in 2018. - To complete. - To complete. 	Official publication, MLME	