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USAID'S LIBERIA ENERGY SECTOR SUPPORT PROGRAM (LESSP) YEAR THREE WORKPLAN (REVISED)

OCTOBER 2012 – SEPTEMBER 2013

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USAID'S LIBERIA ENERGY SECTOR SUPPORT PROGRAM (LESSP)

YEAR 3 WORK PLAN

October 2012 – September 2013

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Strategic Objectives:

- SO1: To extend grid electricity throughout Monrovia and its environs;
- SO2: To develop hydro capacity and other renewable energy sources;
- SO3: To expand grid electricity to other urban areas and some rural areas; and
- SO4: To improve legal, institutional and regulatory framework in the energy sector.

Cover Photo: First Lister engine in Liberia running with Crude Palm Oil as fuel, instead of diesel to generate electricity.

The views expressed in the publication do not necessarily reflect the views of the United States Agency for International Development or the United States Government.

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Acronyms and Abbreviations

BEO	USAID/WDC Bureau Environmental Office
BOQ	Bill of Quantities
BWI	Booker Washington Institute
CBEP	Cocopa Biomass Electricity Project
CBO	Community-based Organizations
CDA	Cooperative Development Agency
COP	Chief of Party
COR	Contracting Officer's Representative
CPO	Crude Palm Oil
CSET	Center for Sustainable Energy Technology
DCA	USAID's Development Credit Authority
DCOP	Deputy Chief of Party
DQA	Data Quality Assurance
ELWG	Energy Law Working Group
EPA	Environmental Protection Agency
EPC	Engineering, Procurement, and Construction
ERB	Energy Regulatory Board
ESG	Energy and Security Group
ESRS	Energy Sector Reform Specialist
GDA	Global Development Alliance
GEF	Global Environment Fund
GOL	Government of Liberia
Greencons	Green Consultancy Inc.
ICT	Information and Communication Technology
LEC	Liberia Electricity Corporation
LESSP	Liberia Energy Sector Support Program
LOE	Level of Effort
LTI	Lutheran Training Institute
M&E	Monitoring and Evaluation
MHI	Manitoba Hydro International
MLME	Ministry of Lands, Mines and Energy
MOU	Memorandum of Understanding
MRHP	Mein River Hydropower Project
NEP	National Energy Policy (Liberia)
NORAD	Norwegian Agency for Development Cooperation
NRECA	National Rural Electric Cooperative Association
NVE	Norwegian Water Resources and Energy Directorate
O&M	Operation and Maintenance
PIDS	L-MEPS Performance Indicators Database System
PMP	Performance Monitoring Plan
PMU	Winrock HQ Project Management Unit
PPP	Public Private Partnership
PV	Photovoltaic
RE	Renewable Energy
REFUND	Renewable Energy Fund
RET	Renewable Energy Technologies
RREA	Rural and Renewable Energy Agency
SHOPS	Small Holder Oil Palm Support Project
UL	University of Liberia
UNDP	United Nations Development Program

UNIDO	United Nations Industrial Development Organization
USAID	U.S. Agency for International Development
WAPP	West African Power Pool
WB	World Bank
WI	Winrock International

I EXECUTIVE SUMMARY

The U. S. Agency for International Development's (USAID) Liberian Energy Sector Support Program (LESSP) responds to the priority set by the Government of Liberia (GOL) of rehabilitating the country's electricity infrastructure, which is an integral component of the nation's macroeconomic development strategy, as set forth in the Poverty Reduction Strategy (PRS). Specifically, LESSP contributes to the following goals articulated in the PRS: it builds the capacity of the restructured Ministry of Lands, Mines and Energy (MLME); increases energy access in Monrovia and three rural counties; launches Liberia's small, micro and mini hydropower and biomass generation capability, and explores additional generation options from other renewable energy sources; and improves legal, institutional, and regulatory frameworks within the electricity sector. LESSP's three objectives are far-reaching, encompassing electricity sector regulation and institutional reform, renewable energy (RE) pilot power plant construction and commercialization, strengthening of community-based organizations (CBOs) and university curricula, public private partnership project development, and support for the Liberia Electricity Corporation's (LEC) management contract. At the same time, a common thread connects the various subcomponents: a focus on renewable energy as a key tool for enabling economic growth.

The LESSP Team has developed a comprehensive strategy and implementation plan for LESSP that reflects lessons learned from two decades of global experience in energy policy and regulatory reform, institutional capacity building, rural electrification, RE technologies (RET) and service delivery, CBO and enterprise development, Global Development Alliance (GDA) or other public-private partnership development, and power distribution in the Liberia energy sector.

2 LESSP BACKGROUND

The purpose of USAID's LESSP is to increase access to affordable, renewable energy services in geographically focused rural and urban areas, in order to foster economic, political, and social development. The ultimate impact of the activity (i.e. the change that is expected in targeted areas upon assessing the completed work) will include:

- Increased and sustainable access to and affordability of electricity within urban and rural poor communities;
- Improved performance of local governments, civil society and the private sector in monitoring, regulating, and managing the use of renewable energy;
- An increase in the percentage of households and businesses utilizing clean energy and a corresponding increase in economic activity; and
- Policy changes that improve the investment climate for the electricity sector.

USAID plays a leading role in building Liberia's energy sector. Its successful collaboration with the GOL and other donors during the Emergency Power Project (EPP) and Liberia Energy Assistance Program (LEAP) has provided a strong platform and valuable lessons for expanding access and improving the affordability of electricity to urban and rural dwellers. LESSP will mobilize the public and private sectors to develop the country's diverse and plentiful renewable energy resources.

LESSP will focus efforts in three counties: Bong, Nimba and Lofa counties. The selection of these counties was based on the fact that the majority of Liberia's population (outside of Monrovia) resides in these three counties. In addition, LESSP will foster useful synergies with other USAID-assisted agriculture, health, and education projects that are based in these counties.

LESSP and its partners will continue supporting MLME, Rural and Renewable Energy Agency (RREA), and the Liberia Electricity Corporation (LEC), to strengthen institutional capacity and expand the generation capacity and customer base in Monrovia for electricity distribution.

USAID Liberia, in consultation with the GOL, donor community, and other stakeholders, has identified RE as an underutilized resource that could have tremendous impact on the country's development. In order to exploit these resources in the most cost-effective and expedient way, LESSP will work with the GOL to implement policies that create an environment conducive to foreign investors and for Liberian entrepreneurs to participate in the growing market for RET and services.

LESSP will establish power projects that will demonstrate the viability of RET, hydro and biomass power technologies, for rural communities. LESSP will also assist the LEC with the installation of a utility interconnected solar photovoltaic (PV) power system, the first of its kind in Liberia. The intent is that this type of project will be

replicated by other non-US government (USG) donors, the GOL and private sector investors over time.

The establishment and management of these renewable energy models will involve public-private partnerships (possibly employing USAID's GDA model) and LESSP shall pursue opportunities to partner with commercial-scale investors, where possible. Concurrently, LESSP's pilot project work will help support the development of a skilled workforce capable of constructing, maintaining, and sustaining infrastructure.

Under the US Foreign Assistance framework's Economic Growth Objective, USAID Liberia's assistance will be leveraged to increase access to modern energy services. USAID Liberia will pursue the objectives outlined below, which are consistent with the USG assistance framework, the GOL's PRS, Liberia's National Energy Policy, and the USAID-GOL bilateral assistance agreement.

LESSP Year Three Revised Work Plan: A draft LESSP Year Three Work Plan was submitted to USAID in September 2012, at the time an independent, mid-term evaluation process for LESSP was taking place. The final report of the Mid-Term Evaluation was received on January 15, 2013. Following this mid-term evaluation, LESSP submitted a budget realignment request in March 2013. After several discussions and revisions, the final budget realignment was approved in July 2013. Subsequently, a contract modification was also issued on September 25, 2013 to reflect the changes in the contract deliverables. This revised Year Three work plan is submitted to reflect these changes in contract deliverables.

LESSP Goal:
To increase access to affordable, renewable energy services in geographically focused rural and urban areas in order to foster economic, political, and social development.

Objective 1 (CLIN 1)
 Strengthen GOL's capacity to implement plans for rural electrification as expressed in the National Energy Policy.

Objective 2 (CLINs 3, 4, 5)
 Establish commercially viable pilot plants that provide renewable energy services to population centers in Bong, Lofa and Nimba counties.

Objective 3 (CLIN 2)
 Collaborate with other international donors for the expansion of Monrovia's power generation, transmission and distribution network.

- Tasks/Activities**
- 1.1 Conduct human resources skills assessment of RREA.
 - 1.2 Execute a training plan for RREA and the REFUND.
 - 1.3 Develop an action plan for a new ERB.

- Tasks/Activities**
- 2.1 At least one mini hydroelectricity power system rehabilitated or constructed.
 - 2.2 Three biomass plants constructed.
 - 2.3 Produce two additional power systems in other renewable energy technologies, funds permitting.
 - 2.4 Support community-based organizations and businesses to operation LESSP power systems.

- Tasks/Activities**
- 3.1 Manage a fund for the purchase of electricity generation, transmission and distribution materials needed to connect low and middle income customers.

- Objective 2 Sub-Tasks**
- 2.3.1 Undertake appropriate feasibility studies & economic analyses for proposed renewable energy power plants.
 - 2.3.2 Develop TOR for EPC-type contracting mechanism to build the facilities (waiver granted to utilize other than EPC-type contracting mechanism).
 - 2.4.1 Assess and create a database of organizations involved with community and cooperative development in target areas.
 - 2.4.2 Provide training and material for cooperatives and businesses operating power systems.
 - 2.4.3 Strengthen centers of higher education, vocational training with renewable energy curriculum.
 - 2.4.4 Secure GDAs/PPPs with non-traditional resource partners to expand delivery of renewable energy.

- Objective 3 Sub-Tasks**
- 3.1.1 Work with MC contractor to develop procurement system that ensures all subcontracts are competitively subcontracted. Sit on selection committee and approval final subcontracts. Monitor all subcontracts to ensure delivery of all agreed upon deliverables.
 - 3.1.2 Release funds for procurement of equipment to MC contractor based upon successful completion of the subcontracts and proof of acceptance of all deliverables.
 - 3.1.3 Work closely with the MC contractor to study, design and provide technical assistance for construction of the PV power generation system for the LEC and for extension of LEC grid to the University of Liberia Fendell campus.

Diagram 1: LESSP Activities Map.

3 YEAR THREE WORK PLAN OVERVIEW

This third year of LESSP activities (October 2012-September 2013) will build upon the foundation established in Years One and Two and the recommendations from the Mid-Term Evaluation and Contract Modification issued in July 2013.

For **Objective 1**, the priority will be to support MLME to finalize the Energy Law and subsequent preparation of the Energy Regulatory Board's (ERB) action plan.

LESSP has submitted RREA Renewable Energy Fund (REFUND) guidelines to RREA on November 2012 and is waiting for comments in order to finalize the methodology that will facilitate and provide financing for modern energy services for rural development. REFUND will also create a channel to manage domestic and international financial resources directed to rural and renewable energy delivery in Liberia.

LESSP will continue to coordinate with MLME and other donors working in the Liberian energy sector (e.g., Norwegian Water Resources and Energy Directorate (NVE), European Union (EU), and The World Bank) on overall capacity strengthening and policy advice related to renewable energy development.

The primary focus of Year Three **Objective 2** will be to initiate procurement processes for the four pilot subprojects – Sorlumba Biomass Electricity Project (SBEP), Kwendin Biomass Electricity Project (KBEP), Mein River Hydropower Project (MRHP), and the alternative subproject to the cancelled Wayavah Falls Micro Hydropower Project (WFMHP). Biomass and Photovoltaic (PV) power generation are the RE technological alternatives to provide the Gbarway community with basic electricity service.

LESSP will secure environmental approvals for the KBEP and the MRHP in the first and second Quarters, respectively. The feasibility study for the KBEP will be completed and submitted to EPA by October 2012. It is expected to obtain the MRHP environmental approval from USAID's WDC Bureau Environmental Office (USAID/BEO) in late January 2013.

LESSP will finalize the development of the streamlined procurement, and construction system. Bidding documents will be completed by September 2013. In preparation to the construction phase, the LESSP Quality Control and Health and Safety Plans are scheduled for submission to USAID mission by June 2013.

LESSP will continue outreach to the pilot site communities, as per the Memorandums of Understanding (MOUs)/Agreements that stipulate clear roles and responsibilities in the full implementation of the pilot projects. The pilot projects in Kwendin, Sorlumba and Gbarnway will be operated, maintained, managed and owned by the respective local electricity cooperatives, which were formed for this purpose. LESSP will continue to build their capacity in Year Three. The Mein River Power Company (MRPC) will be formally registered. MRPC's ownership will be shared among Cuttington University, Phebe Hospital and local communities from the project power plant area. The MRPC will own and operate the future power plant and all other project infrastructure. LESSP, in collaboration with National Rural Electric Cooperative (NRECA) International Ltd., will prepare a business plan for the power company, which will include training plans for operators, managers and the board members. The business plan will also include policy and procedures and plans for strengthening institutional capacity of the power company.

Award and implementation of grants as envisioned in the Project Paper to support the pilot projects and communities have been mostly cancelled due to reallocation of funds into "design-bid-build" construction activities using subcontractors. However, some Objective 2 activities for Year Three and Four will include granting office equipment and supplies to the electric cooperatives as in-kind grants for their operations. Some institutional strengthening of cooperatives and the MRPC will be supported through project activities.

The provision of technical assistance to strengthen renewable energy curriculum in selected institutions of higher learning was carried out predominantly in Year Two. Follow up activities such as installation of RE pilot systems for practical training of both students and instructors at BWI will be carried out in Year Three.

Work for **Objective 3** was put on hold per USAID instructions in December 2011. Following the recommendations of the Mid-Term Evaluation and the subsequent Contract Modification, the Objective 3 scopes of work have been adjusted, as described in LESSP Activity Map on page 10.

This modification includes the addition of a '**Sub-task 3.1.3: The Contractor shall work closely with the MC Contractor to study, design and construct a PV power generation system for the LEC.**' The anticipated result of Objective 3 has been revised as 'In Monrovia and environs, the MC contractor will be supported to expand connections and power available to middle and low income customers. The power generation, transmission and distribution system will be expanded to cater to the LEC's residential, commercial and institutional customers.' As a response to the modification, two concept studies are to be developed:

- Utility Interconnected 1 MW PV Power System for LEC; and
- Medium Voltage Extension of Electrical Distribution Line from Paynesville to University of Liberia (UL) Fendall Campus

The following sections of this document detail LESSP planned activities and milestones for Year Three.

4 OBJECTIVE I: STRENGTHEN THE GOL'S CAPACITY TO IMPLEMENT PLANS FOR RURAL ELECTRIFICATION AS EXPRESSED IN THE NATIONAL ENERGY SECTOR POLICY

Team Leader:	Energy Sector Reform Specialist, ESG.
Supporting Team Members:	COP; Tetra Tech; ESG
Collaborating partners:	MLME, RREA, World Bank's Catalyzing New Renewable Energy in Rural Liberia project, NORAD's Norwegian Water Resources and Energy Directorate (NVE), DTI, and other TBD training providers.
Year Three Deliverables:	Additional Inputs to Energy Law, as requested by MLME (October 2012 - September 2013); REFUND Operating Guidelines (Draft, October 2012; Final September 2013); Update to ERB Action Plan as requested by MLME (October 2012 - September 2013).

A. Overview

The RREA was created by the GOL by Executive Order 23 in January 2010 to facilitate and accelerate the economic transformation of rural Liberia by promoting the commercial development and supply of modern energy products and services to rural areas through private sector development and support of community initiatives. RREA is also responsible for managing a new Rural Energy Fund (REFUND). As part of its support to Liberia, USAID is partnering with the GOL through MLME to help establish and build the capacity of the RREA to strengthen and support the agency to achieve its mission.

The following defines the tasks associated with Objective 1:

Task 1.1: LESSP shall conduct a skills assessment of human resources within the MLME. LESSP shall utilize the skills assessment as the basis for developing a training plan that will help build technical and managerial capacity of the MME to implement its plans for rural electrification.

Task 1.2: LESSP shall develop and execute a training plan on the basis of results from Task 1. A prime focus under this task will assist the MLME

build capacity of staff associated with the fledgling Rural Renewal Energy Agency (RREA) and the Renewal Energy Fund (REFUND) as elaborated in the National Energy Policy.

Task 1.3: LESSP shall develop an action plan for an independent electricity regulatory commission. The establishment of an independent regulator will reduce government interference/control and therefore improve the enabling conditions for private sector participation in the energy sector. LESSP's technical assistance shall result in a detailed action plan that the GOL can use to create this important institution.

The anticipated results during the life of project are:

- Through a skills assessment and training, the technical and managerial capacity of RREA staff will be strengthened to expand energy services in the rural areas and support the development of viable rural electrification projects by the public and private sector;
- REFUND operating guidelines established and launching of the fund;
- An action plan for the development of an independent electricity regulatory board, to include inputs by GOL entities, key donors and other stakeholders; and
- National Energy Policy (Energy Law) for renewable energy implemented.

B. Year Three Activities, Results, Deliverables

Task 1.1: Skills Assessment

This task involved an assessment of RREA staff capabilities, as well as identification of gaps and the associated need for additional skillsets. Information obtained from the report provided the basis for developing and implementing RREA/REFUND training priorities for Task 2. The Skills Assessment report was completed in Year One.

It is well understood by USAID and the Contractor that capacity building is better served in a continuous fashion. However, allocation of sufficient funds for the construction and sustainability assurance of LESSP pilot projects directs that no additional training for increasing managerial skills of RREA-staff individuals will take place in Year Three. LESSP will include RREA staff in project activities to ensure commitment to pilot projects.

a) Year Three Results and Deliverables

- None

Task 1.2: Develop and Execute Training Plan

In Year One, a training plan was developed for RREA Directors. The training plan was prepared for the RREA management team as a whole, as well as for each of the

individual RREA directors, according to his/her professional aspirations, work responsibilities, and training preferences. The training plan was developed to strengthen the technical, managerial, and institutional capacity of RREA to implement its plans for rural energy development in Liberia and addressed the following:

- Defined training objectives and set priorities for RREA management training requirements over the course of the project;
- Allocated resources for near-term training;
- Outlined specifications for each training course identified, to include course title, description, venue and dates, duration, estimated budget, and training co-sponsors (where applicable); and
- Identified prospective training programs/institutions to meet these requirements in Africa and elsewhere.

In **Year One**, training courses were conducted for RREA Directors in program and financial management. MLME staff was trained in RETSCREEN Clean Energy Project Analysis Software. In **Year Two**, individualized training programs were developed for RREA Directors who attended courses at accredited institutions in Africa and Canada, which select RREA staff attended. In **Year Three**, LESSP has no further plan for individual training of RREA managerial staff.

a) Year Three Results and Deliverables

Support for this activity is dependent upon RREA priorities and actions. If this activity is pursued:

- Draft REFUND operating guidelines will be produced by June 30, 2013
- Final REFUND operating guidelines will be produced by September 2013

Task 1.3: Energy Law Revision and ERB Action Plan

Energy Law. In Years One and Two, LESSP conducted a review of the 2009 Energy Law. LESSP's detailed comments were submitted to USAID, MLME, RREA, MHI, LEC, and key donors. Follow-up meetings with the MLME and eight other GOL Ministries and agencies MLME and LESSP have been conducted and the draft law has been updated to reflect inputs from stakeholders and donors. As of August 2012, the revised draft of the 2009 Energy Law was with the MLME to determine next steps.

In Year Three, **LESSP will provide support to continue to move the energy law forward.** Follow-up consultations, additional stakeholder meetings, and re-drafting of the law will occur, as requested by the MLME. The key stakeholders to be engaged in the energy law review and the ERB action plan will include the MLME; government agencies, including the LEC, the National Oil Company of Liberia (NOCAL), RREA, the Ministry of Planning and Economic Affairs, the Ministry of Finance; and donor organizations including NORAD, Japan, EU, World Bank, UN

agencies. LESSP staff shall serve as a participant and advisor to the MLME Energy Law Working Group (ELWG) as well as the LESSP legal consultant.

At least six **ELWG meetings** will be held from January to April 2013 to finalize a Draft Energy Law that will include international donor and stakeholder's inputs. LESSP plans on **facilitating a study tour to Ghana and Uganda for three MLME ELWG members**, including the Assistant Minister of Energy, to learn about energy law and regulatory board from their counterparts and experts in these countries. LESSP will organize an **Energy Law Symposium** by July 2013 in which resolutions are expected from the MLME in regards to the proposed revised 2009 Energy Law.

ERB Action Plan: LESSP is taking a lead role in developing a plan for the creation of an Electricity Regulatory Board (ERB) for Liberia that sets specific milestones and mechanisms. Preparation of the ERB action plan entails tariff design, public-private partnerships, licensing, public hearings, customer service, dispute resolution and other areas. The LESSP team has drawn upon expertise from other team members (e.g., Pierce Atwood and Energy and Security Group) to ensure that international best practices in energy sector regulation are followed. The ERB is designed to have an open door policy that allows for new ideas and processes to evolve for the growth of the sector. In its early development, the ERB may first be developed within the MLME, as this ministry has the primary electricity experience in Liberia (other than LEC); however, eventually the ERB must become independent.

In **Year One**, the LESSP team completed a draft ERB Action Plan. The plan provides a step-by-step roadmap for the government in establishing and developing the ERB. It also includes a menu and schedule of training topics to support ERB development in Years Two through Four, including a focus on tariffs, licensing assistance to the MLME, service quality standards and enforcement, customer service and dispute resolution. The establishment of the ERB is a significant undertaking for any country, even under the best of conditions. The process is made even more challenging when the country conditions are not ideal (e.g., an uncertain political and institutional environment, weak utilities, power deficits and shortages, and a general environment of economic instability). The ERB action plan addresses the key steps and decision points, enabling instruments (i.e., legislation, policy, etc.), and a collaborative process with the domestic and international community to ensure the highest degree of buy-in and support for the new Commission.

In **Year Two**, LESSP updated the ERB Action Plan based on comments received from MLME members. However, as the ERB is linked to the enactment of the new Energy Law, additional work on the Plan will only be conducted until the Law nears enactment.

In Year Three, the LESSP team will remain available to provide technical assistance and support to MLME and others, as requested and as the budget allows, to finalize the ERB Action Plan. It is anticipated that with the passing and finalization of the Energy Law, the ERB Action Plan will also be finalized.

a) Year Three Results and Deliverables

Deliverables are contingent upon MLME priorities, actions and requests for continued support on the Energy Law and ERB Action Plan:

- Updated Energy Law Review and Report, incorporating stakeholder meeting comments by September 2013;
- Revised Energy Law;
- Updated ERB Action Plan, incorporating comments received during stakeholder meeting comments by September 2013.

C. Potential Challenges and Mitigation Strategies

Objective 1: Example Potential Challenges	Example Mitigation Strategies
Provide training that remains relevant, even as institutional circumstances change	Focus on development of analytic and problem-solving skills and processes, not just the transfer of technical knowledge
Provision of training that is either forgotten by recipient or does not provide timely, pertinent information	Provide training according to a skills acquisition timetable for each position description. As part of the training curriculum, detailed documentation will be developed and made available to the trainees as a means of refreshing the information provided
Conflict between agencies	Focus on clarity in the division of roles
Lack of REFUND funding	Develop operating guidelines that meet the financial/technical needs of international donors and provide the basis for future fundraising
Failure to obtain buy-in from the necessary stakeholders	Engage stakeholders at all stages of RREA/Energy Law/ERB Action Plan development and implementation
Lack of institutional knowledge to transfer training to new staff members	Institutionalize training programs within RREA for educational development of new employees
Uncertain political and institutional environment, weak utilities, power deficits, and economic instability in Liberia	The ERB action plan will layout the steps needed to develop and implement an effective ERB in the country, based on the successful experiences of other countries in Africa and elsewhere

5 OBJECTIVE 2: ESTABLISH COMMERCIALY VIABLE PILOT PLANTS THAT PROVIDE RENEWABLE ENERGY SERVICES TO POPULATION CENTERS IN BONG, NIMBA, AND LOFA COUNTIES

Team Leader:	COP / DCOP
Supporting Team Members:	Renewable Energy Engineer, Hydropower Engineer; Community Outreach Specialist, M&E Specialist; Electrical Engineer; Hydropower Technical Team; Biomass Technical Team; RE Education Expert; Various STTA provided by LESSP, ESG, and Green Consultancy Inc.
Collaborating partners:	MLME; RREA; EPA; LEC; Bong, Lofa and Nimba County local authorities; Cuttington University; Phebe Hospital Kpakpormein Farmer's Cooperative DEN-L; Surlumba Community Electric Cooperative, Gbarnway Electric Cooperative; Suakoko District Community; UNIDO; Development Credit Authority/USAID; International Bank of Liberia; World Bank's Catalyzing New Renewable Energy in Rural Liberia project; NORAD; University of Liberia, USAID's EHELD project; USAID's FED project; Booker Washington Institute (BWI), USAID's IBEX Program, Lutheran Training Institute; Federation of Liberian Youth; Eco Power Liberia Ltd.; VOCTEC; and NRECA International Ltd.
Year Three Deliverables:	I. Surlumba Biomass Electricity Project (SBEP): (1) Bidding Documents (July 2013); II. Wayavah Falls Micro Hydropower Project (WFMHP) or its Alternative: (1) Bidding Documents (July/August 2013). III. Mein River Hydropower Project (MRHP): (1) Environmental Impact Assessment (EIA) Report with EMMP Plans (January 2013); (2) Bidding Documents (July 2013); IV. Kwendin Biomass Power Project (KBPP): (1) KBPP Feasibility Study (December 2012); (2) KBPP Environmental Assessment Report with EMMP (March 2013); (3) Bidding Documents (July 2013).
Other Milestones:	Updated Public-Private Partnership/GDA Plan (October, 2012); Implementation of CBO Training Plan (October 2012 – September 2013); RE Curriculum implemented at institutions of higher education (October 2012 – September 2013); Quality Control Plan (May 2013) and Health and Safety Plan (June 2013).

A. Overview

This objective's centerpiece is the **establishment of commercially viable pilot plants in Bong, Nimba, and Lofa counties using RE technologies** to demonstrate commercial viability and encourage replication. Expected results are the construction of one hydropower project, one biomass gasifying power generation project, one biomass SVO power generation project and another RET project as appropriate according to energy demand and local RE resources.

As a consequence of the Mid-Term Evaluation, USAID decided to cancel the Wayavah Falls Micro Hydropower Project (WFMHP) due to the associated high construction costs. Such decision was supported by the fact that the World Bank has recently completed a micro hydro project in Yandohan for which there is no need for piloting similar micro hydro projects. It was determined that Wayavah Falls MHP would be replaced with a similar but less expensive PV or biomass system. LESSP will conduct an assessment to identify appropriate and cost effective technology for rural electrification of Gbarnway town.

Due to the need to focus allocated resources on these four pilot projects, there are no plans to develop other RE pilots at this time. Other expected results from this Objective's tasks are an increase in Liberian skilled labor; community or private management entities formed to operate, maintain, manage and own each power system, supported by a viable cost-recovery program; enhanced technical capacities in RE technologies in higher education institutions; and an increase in rural access to electricity in the targeted geographic areas of the four pilot plants from 2% to 10%.

An important focal area for technical assistance in Objective 2 is the establishment of and support to village cooperatives and businesses to operate the pilot power plants on a sustainable basis. Capacity-building efforts will focus on these operating entities, but an additional small task is included to help strengthen RE capabilities at select centers of higher education to build a more robust base of local expertise. With these tasks, LESSP continues to identify and target participation from women and youth. LESSP also identifies linkages with other USAID programs and other donors working in RE, in the target counties and with pilot communities to support crosscutting development objectives, in areas such as agriculture, health, education, and ICT. LESSP is collaborating with USAID's FED program to support farmers in the LESSP subproject area for farm activities and facilitate access to credit. LESSP seeks to identify and form public-private partnerships where possible, to help leverage the impact of LESSP resources and strengthen sustainability.

The following are the tasks/subtasks associated with Objective 2:

Task 2.1: LESSP shall establish one hydroelectricity power systems. One mini hydroelectricity system with a minimum output of 100 kW and maximum 5 MW.

Task 2.2: LESSP shall establish at least two biomass-powered electricity systems.

Task 2.3: If funds allow, LESSP shall produce two additional power systems using any of the following technologies: solar, biofuels, wave, geothermal or wind.

Task 2.4: LESSP shall develop a program that will establish community-based organizations and/or assist local businesses operate and manage LESSP power systems.

Sub-task 2.4.1: LESSP shall assess and create a database of organizations involved with community and cooperative development in target areas.

Sub-task 2.4.2: LESSP shall provide training and material support (e.g. business plan development, accounting training and software, equipment, and equipment maintenance training) for cooperatives and/or businesses operating power systems.

Sub-task 2.4.3: LESSP shall provide short-term technical assistance to strengthen centers of higher education (e.g. vocational education schools, universities, colleges) in the science and engineering of renewable energy technologies. LESSP shall also update curricula at vocational schools and other centers of higher education to enhance the program's objectives and results.

Sub-task 2.4.4: LESSP shall pursue a public private partnership (PPP) strategy, which may include a GDA, with traditional and non-traditional resource partners (companies, foundations etc.) to leverage USAID funds in expanding the delivery of renewable energy.

Anticipated Results During Life of the Project:

- One hydroelectric plant will be constructed as per contract modification.
- Two biomass plants will be constructed.
- One PV Community project.
- Potential additional renewable energy systems based on the availability of funds.
- Liberian human resources in the renewable energy sector will be strengthened, laying the foundation for future growth with private sector investments in renewable energy technology. In addition, each rural power system will have community and/or private sector management and an agreed upon cost-recovery program.
- By the end of four years, access to electricity outside of Monrovia would increase from 2% in target geographical areas.
- Technical capacities of centers of higher education in science, engineering and renewable energy technologies will be strengthened.

B. Year Three Activities, Results, Deliverables

Task 2.1: Hydropower Systems

The main activities for Year Three are completing the procurement process for construction of the alternative PV project for Gbarnway, and initialize the Environmental Impact Assessment (EIA) and securing approval from USAID that will enable the 1,000 kW Mein River Mini Hydropower Project (MRHP) to proceed for construction. The main activities of these projects during the year includes securing any final approvals, procurement, finalizing quality control plans for construction, formalizing agreements and management plans with the local communities and establishment of power company (in case of Mein River) who will own, operate and maintain the projects, and awarding contracts for construction.

a) Feasibility Studies and Socio-Economic Analyses

LESSP has completed detailed feasibility studies for the two hydropower pilot projects, Wayavah Falls and Mein River, including technical analyses, financial analyses, auxiliary system analyses, initial environmental assessments, community development analyses and identification of potential public-private partnerships and funding opportunities. The reports were approved by USAID in Year Two. An environmental review report for Wayavah Falls was approved by the EPA, GOL, and USAID. An environmental review was also conducted for Mein River. USAID has requested a full Environmental Impact Assessment (EIA). LESSP prepared the Scoping Statement for the EIA and submitted it to USAID BEO for approval in July 2012. Following the approval of the Scoping Statement in October 2013, LESSP completed and submitted the EIA study to USAID in December 2013. The EIA report was approved by the BEO in January 2013.

b) “Design, Bid and Build” Contract Model

In Year Two, LESSP completed the feasibility level engineering design and began the EPC (Engineering, Procurement and Construction) process for WFMHP (Wayavah Falls). The procurement process, however, was not successful due to poor responses from local and international firms and the very high cost of bids received. Due to high cost of WFMHP, LESSP is examining a more cost effective alternative to replace WHMHP. The construction drawings and technical specifications and BOQ and the bidding documents for MRHP will be completed in July 2013.

LESSP will ensure full compliance with USAID regulations, GOL rules and regulations, and environmental compliance for the construction of the hydropower projects. LESSP will oversee subcontractors and actively supervise all aspects of subcontracted construction, including monitoring and supervising work progress and quality. LESSP will ensure that the team provides on-the-ground supervision for all procurement, construction, installation, and training. LESSP has completed Quality

Control Plans and a Health and Safety Plan for construction, both of which have been approved by USAID.

LESSP has signed a MOU with USAID's EHELD program for recruiting five or more engineering students from University of Liberia, who will be trained by LESSP and will serve as inspectors for construction of pilot projects. This will provide engineering students with construction experience.

c) Year Three Results/Deliverables

WFMHP

- Bidding Documents for WFMHP (April 2013)
- Identification of Alternative Project to WFMHP (July 2013)
- Bidding documents for the Alternative Project (July/August 2013)

MRHP

- Approval of Environmental Impact Assessment (EIA) for the Mein River Mini-hydro Project (January 2013)
- Bidding Documents (July 2013)

Task 2.2: Biomass Systems

In Year Two, LESSP identified and pursued the development of two biomass power projects: the Sorlumba Biomass Electricity Project (SBEP) and the Cocopa Biomass Electricity Project. A feasibility study and initial environmental review were prepared for SBEP and approval was secured to proceed. The main activities for Year Three for SBEP are completion of bidding documents, procurement, awarding the associated procurement, services and construction contracts.

As for an additional site, LESSP commenced a search for other alternatives. Major towns in Nimba County have been identified for receiving electricity from the WAPP/LEC cross border electricity project. This has allowed LESSP to identify Kwendin, a town that has not been included in the WAPP/LEC plans and that is located 11 km away from Tap pita in Nimba County as a candidate town for establishing a micro electricity system using locally available biomass resources.

a) Feasibility Studies and Socio-Economic Analyses

LESSP will complete the feasibility study for establishing the Kwendin alternative biomass pilot project in the First Quarter. It will be submitted to the USAID's Bureau Environmental Office BEO (BEO) to seek for environment approval. A Project Brief that will include an environmental review and an assessment checklist will be submitted to EPA/Liberia to secure a Liberian environmental permit.

b) Engineering, Procurement, Construction (EPC)

In Year Two, LESSP completed the request for proposal process to select suppliers for Straight Vegetable Oil (SVO) generators and electricity distribution system, as well as to select the construction contractors for the Sorlumba Biomass Electricity Project.

A supplier of Lister Engines in India with experience using Jatropha Oil as diesel substitute was identified. A 5 kW Lister engine/generator will be imported to carry out test using CPO from Sorlumba to determine if larger units should be procured for the Sorlumba project. LESSP will design a pre-treatment system to filter and preheat CPO for the series of tests to be conducted in a local workshop in Bushrod Island.

When the Lister engine test is successful, three units of Lister engine should be imported to meet the expected demand in Sorlumba. The largest available Lister engine generator comes in 12 kW. Such a configuration of generators would require some revision of the engineering aspects such as construction drawings, technical

specifications and BOQ for the powerhouse and the distribution system from the powerhouse to groups of consumers.

LEESP will ensure full compliance with USAID regulations, GOL rules and regulations, and environmental compliance for the construction of the biomass power projects.

c) Year Three Results/Deliverables

SBEP:

- Design and fabrication of a CPO pre-treatment system
- Trial runs of a 5 kW Lister engine (June-July 2013).
- Release of Bidding Document (July 2013)

Kwendin:

- Completion of feasibility study (December 2012)
- Complete Environmental Assessment and receive EPA/USAID permits (March-July 2013)
- Release of Bidding Documents (July 2013)

Task 2.3: Additional Power Systems

No additional RE power systems are planned to be implemented at this time, in light of competing fiscal priorities.

Task 2.4: Power System Operators (CBOs and Businesses)

During **Year Two**, Gbarnway Wayavah Electric Cooperative and Sorlumba Electric Cooperative Society were formed in Gbarnway and Sorlumba respectively. The cooperatives will later own, operate and manage the pilot power plants in their area.

A ten-week training in basic electrical and mechanical works was given at BWI to eight participants from each of the project areas in Year Two. The trainees were appointed by the cooperatives as the potential technicians to operate LEESP subprojects. The selection criteria included level of education, technical skills and willingness to become a power plant operator. A series of trainings related to management and administration of cooperatives was also given to cooperative members in Year Two.

More training will be provided to cooperative members in **Year Three** to further build their skills for institutional strengthening of the cooperatives. A training plan for the rest of the project period was submitted to USAID in September 2012 and was approved. The training plan will be revised in Year Three.

LEESP, in collaboration with Vocational Training and Education for Clean Energy (VOCTEC), another USAID funded project, will provide a micro hydropower operators training for LEESP subproject operators, Yandohan MHP and for BWI

instructors and RREA engineers. LESSP plans to have a signed MOU between LESSP and VOCTEC partners in September 2013.

Sub-task 2.4.1: Assess and Create a Database of Organizations Involved with Community and Cooperative Development in Target Areas

This database was created in Year One and from it groups were identified to work with to form owner/operator cooperatives for the pilot projects.

Sub-task 2.4.2: LESSP shall provide training and material support for cooperatives and/or businesses operating power systems.

In Year Two, MOUs were signed with Gbarnway Wayavah Electric Cooperative and Sorlumba Community Electric Cooperative Society. The MOUs describe the roles of each party in the implementation and later operation of the power plant. LESSP facilitated the process of formation of the electric cooperatives. In Year Two, LESSP began training potential local operators for the power plants.

LESSP held several meetings with Cuttington University, Phebe Hospital and Pulukpeh Multipurpose Farmer's Cooperative (PMFC) with support from RREA/MLME to finalize agreement to the formation of Mein River Power Company. In Year Three, LESSP local lawyer will carry out legal due diligence through a series of consultations with relevant government, institutions, LEC and stakeholders. Registration of the Mein River Power Company will be facilitated by LESSP. As well as the formal creation of a cooperative that represents all stakeholders from the three clans that fall within the project area.

LESSP will collaborate with NRECA for institutional strengthening of Mein River Power Company. NRECA team will visit Liberia in June 2013 to carry out a load demand and Willingness to Pay survey¹ and hold a workshop with power company partners to prepare a business plan for the proposed power company.

LESSP will also coordinate with LEC and RREA to develop institutional set-ups for off-grid power companies or cooperatives. Such coordination/collaboration will help in harmonizing technical standards and also institutional and management set up of power companies taking into account LEC's grid extension in the future.

¹ LESSP carried out similar survey in May 2011. The new survey was carried out to update the previous study and also to include load centers in Gbarnga town which the previous survey did not have.

No	Pilot Project	Potential Organization	Area of Collaboration	Remarks
1	Mein River Hydro Power Project (MRHPP)	Mein River Power Company (MRPC)	Resource mobilization, Training Technical Assistance	The proposed Company will be jointly created and owned by Cuttington University, Phebe Hospital and School of Nursing and Kpakpormein Farmers' Cooperative with assistance from LESSP.
2	Wayavah Falls Hydropower Project (WFHPP)	Gbarway Woeyah Electric Cooperative (GWEC)	Supplier of locally available resources including land site for the power plant construction, Training and technical assistance	This cooperative has been formed, legalized and now receiving both business and technical trainings and assistance for capacity building from LESSP
3	Kwendin Biomass Electricity Project (KBEP)	Kwendin Lorkiah Electric Cooperative (KLEC)	Resource mobilization; Training and technical assistance	Once an organization is identified or established, it shall play a leading role in mobilizing local resources including the supply of biomass materials and will be provided the required trainings by LESSP to manage the power system
		Eco Power Liberia Ltd.	Provider of gasification technology and will take responsibility for O&M	This organization either directly or through an NGO could operate or maintain (O&M) the power system.
4	Sorlumba Biomass Electricity Project (SBEP)	Sorlumba Community Electric Cooperative Society (SCECS)	Supplier of locally available resources including land site for the power plant construction, Training and technical assistance	SCECS has been formed, legalized and now receiving both business and technical trainings and assistance for capacity building from LESSP

Sub-task 2.4.3: Provide Short-term Assistance to Strengthen Centers of Higher Education in the Science and Engineering of Renewable Energy Technologies; up-date curricula at Vocational Schools and Other Centers of Higher Education to Enhance Program Objectives and Results

In **Year Two**, an assessment of leading Liberian higher education institutions was conducted to recommend and prioritize the key institutions with whom the project should work in order to achieve LESSP's objectives for developing RE curricula to support capacity in Liberia. LESSP identified four institutions that are good candidates for curricula strengthening and have shown interest in collaborating with LESSP: University of Liberia (UL), Stella Maris Polytechnic Engineering, Booker Washington Institution (BWI), and Lutheran Training Institute (LTI).

Findings of the assessment were reported to USAID in March 2012 through the "Higher Education Institutional Support Plan." LESSP worked closely with BWI Vocational Training Center (VTC) via meetings, training sessions, workshops, and signing of an MOU to strengthen curriculum development.

LESSP also established a relationship with the Excellence in Higher Education for Liberian Development (EHELD) project and prepared a curriculum on renewable energy in the new electrical engineering curricula of the College of Science and Technology that EHELD implemented at University of Liberia in September 2012.

Although LESSP has met the contractual requirements of updating curricula at one higher education institution for Year Three, LESSP will continue to identify ways to support this area of capacity building for these institutions. LESSP is aware of the urgent need for education and energy infrastructure and is willing to go beyond supporting the contractual obligation, if resources are available.

LESSP intends to hire engineering students to train them as inspectors to supervise construction of LESSP pilot subprojects. An MOU has been signed with EHELD to this effect.

LESSP presented several support options for RE curricula implementation in the "Higher Education Institutional Support Plan" and will seek ways to expand work in this area, either through LESSP directly or identifying other programs and donors who can continue this work. BWI has been identified as a potential resource for development that could in turn support the success of LESSP's pilot projects through providing training support to the pilot owners/operators. The continuous creation of skilled technicians at BWI would not only ensure sustainability of LESSP's projects, but would encourage the use of RE across Liberia. A curriculum development-working group has been formed at BWI to evaluate the current curricula and, based on that analysis, propose additional RE courses. The working group also conducted a needs assessment to identify necessary equipment and supplies for the programs.

BWI professors and LESSP representatives make up this working group. It is anticipated that Biomass Curriculum for the RE students will be the first to be developed (see section VII. Grants under Contract).

Year Three Results/Deliverables

- Concept study for expansion of distribution network for Eagle Power (Sep 2013).
- Continued implementation of the Training Plan for Cooperative member (Oct 2012 – Sep 2013).
- Collaboration with EHED and VOCTEC projects for training and capacity building in Liberia (Oct 2012 – Sep 2013)
- At least one public–private partnership/GDA agreement signed and implemented (Sep 2013)

Diagram 2: Potential Challenges and Mitigation Strategies, Objective 2

Potential Challenges	Mitigation Strategies
Increase in project cost due to longer access road	The EPA mandated a five km long access road, which would pass through numerous gullies and require substantial cost for construction. This would increase the financing gap in the project. Discussions were held with the EPA and a shorter access road was approved by EPA.
Lack of local engineering construction firms to undertake civil construction components of biomass plants	LESSP will explore the regional engineering construction firms with Liberian counterparts for the implementation of civil construction work.
Building local technical capacity to manage and operate renewable energy systems	Provide support to the local communities during the first few months of the plant operation. Provide technical training to the employees by the equipment and machinery vendors as part of the procurement of the power system.
Ensuring commercial operation	<p>Develop maximum private sector participation; support preparation of strong business plans and strategies to implement them; develop capable technical manpower and service providers;</p> <p>Develop capable technical and managerial manpower program for the owners/employees of the power system.</p> <p>Assist with the development of a reliable tariff collection system and monitor the operation costs closely. Assist with the establishment of systems to avert theft and waste.</p> <p>Work with stakeholders to ensure that tariffs reflect the actual cost of generation.</p>

6 OBJECTIVE 3: COLLABORATE WITH INTERNATIONAL DONORS FOR THE EXPANSION OF MONROVIA'S POWER GENERATION, TRANSMISSION AND DISTRIBUTION NETWORK

Team Leader:	DCOP
Supporting Team Members:	COP; Solar Energy Expert; Construction Engineer and Manager; Electrical Engineer; Civil Engineer; Financial/Procurement Specialist
Collaborating partners:	Liberia Electricity Corporation, Manitoba Hydro International, NORAD, World Bank, University of Liberia Fendall Campus.
Year Three Deliverables:	(1) Utility Interconnected 0.5 MW Solar PV Power System for LEC: (1) Final Concept Study, (2) Specifications (3) LEC Agreement (2) MV Distribution line Extension from Paynesville to UL Fendall Campus (1) Final Concept Study, (2) Specifications (3) LEC Agreement

A. Overview

The original scope of work included the following tasks and sub-tasks. These were pursued in Year One, but put on hold.

Task 3.1: LESSP shall manage a fund for the purchase of electricity distribution materials (e.g. meters, wire, transformers) needed to connect low and middle-income customers.

Sub-task 3.1.1: Contractor shall work with MC contractor to develop procurement system that ensures all subcontracts are competitively subcontracted. Sit on selection committee and approval final subcontracts. Monitor all subcontracts to ensure delivery of all agreed upon deliverables.

Sub-task 3.1.2: Release funds for procurement of equipment to MC contractor based upon successful completion of the subcontracts and proof of acceptance of all deliverables.

As a result of contract modification, Sub-task 3.1.3 has been added.

Sub-task 3.1.3: Work closely with the MC contractor to study, design and provide technical assistance for construction of the PV power generation system for the LEC and for extension of LEC grid to the University of Liberia Fendell campus.

Anticipated Results During Life of the Project

The **original Objective 3 Anticipated Results** during the life of the project was: ‘In Monrovia and environs, the MC will be supported to expand connections to low- and middle- income customers. The distribution grid will be expanded to provide for at least 5,000 low-income customers’. The **revised Objective 3 Anticipated Results** after contract modification direct that: ‘In Monrovia and environs, the MC contractor will be supported to expand connections and power available to middle- and low-income customers. The power generation, transmission and distribution system will be expected to cater to the LEC’s residential, commercial and institutional customers’.

The Norwegian Agency for Development Cooperation (NORAD) is funding a management contract (MC) awarded to Manitoba Hydro International to manage the LEC and to extend electrification to low- and middle-income underserved populations in Monrovia, in partnership with the LEC.

When LESSP was launched, the LEC had already progressed with procurement plans presenting challenges to LESSP being able to follow the tasks as outlined above. In Year One, LESSP worked with the LEC and USAID to devise a procurement auditing strategy that would ensure procurement compliance and enable LESSP to support the LEC distribution procurement plans. In July 2011, LEC approached LESSP and requested that LESSP support a comprehensive Training and Development Program for LEC employees instead of procurement of distribution equipment. LEC further informed LESSP that LEC had secured some funding resources from other donors to procure equipment and that an equally important need was to build the technical and management capacity of the LEC employees, as LEC determined that without employee capacity, the LEC would not be able to accelerate electricity connection to low income households in Monrovia. After discussing this request from the LEC, USAID indicated support for this alternative strategy to support the LEC. LESSP was prepared to request a contract modification to pursue the training support but was instructed by USAID to stop work on this Objective in December 2011 until further notice.

In May 2013, USAID instructed LESSP to continue work under Objective Three. LESSP will provide technical assistance and procure equipment and supplies on behalf of LEC for the expansion of the Monrovia power grid.

Year Three Results/Deliverables

- Concept study/prefeasibility study for Utility Interconnected 1 MW Solar PV Power System for LEC.
- Concept Study/prefeasibility study for MV distribution line extension from Paynesville to UL Fendell Campus

B. Potential Challenges and Mitigation Strategies

Objective 3: Potential Challenges	Mitigation Strategies
Delay in finalizing the Concept Studies with LEC and UL Fendall Campus	Sign a MOU with LEC and UL Fendall Campus. Identify issues and address them for early agreement.
High-level officials in LEC have several responsibilities and coordination may be difficult	Hold regular progress coordination meetings to fast track the implementation process

7 GRANTS UNDER CONTRACT

LESSP grant activities may be used to fund GDAs and support pilot projects. Prior to the finalization of the budget modification, LESSP anticipated using grant funds to support the development of the pilot projects through training, operational support, and income generating activities to ensure success and sustainability of the pilots and cooperatives. One final area of support also considered for grants is for institutions of higher learning and vocational institutions. This support would build capacity for the institutions, as well as for the pilot project operators and communities.

After reprioritization of LESSP budget funds, most activities originally planned as grants are to be shifted to pure procurement or technical assistance except support to be given to institutions of higher education and vocation.

LESSP will provide technical assistance and funding to BWI as part of the PPP between EcoPower Liberia, the BWI, RREA, the Morris Rubber Farm, Firestone, and LESSP. This PPP will be the first PPP in a production scale institutional power application to research, demonstrate, and promote renewable biomass energy in Liberia and to extend renewable biomass energy experience and technology as a viable option to diesel power to rural Liberian agricultural communities and to the mining and forestry sectors, while training new technicians in the biomass electricity generation sector.

Via the PPP, a 70 kW biomass fueled power plant at BWI will be constructed, and a staff of Liberian professionals will be trained to operate and maintain the power plant. The plant will provide low-cost power to the school, thus reducing its biggest expense, diesel fuel. At the same time, the power plant will provide a multi-disciplinary training center for the nascent biomass power sector, the Liberia Center for Biomass Energy (LCBE) at BWI. The LCBE will (1) showcase biomass RET to government decision makers, commercial farmers and agricultural industries, mining and forestry industrial private sector entities and (2) facilitate the development and establishment of RE curricula and demonstration classroom lab and facility at BWI.

8 COMMUNITY OUTREACH

The LESSP Monitoring, Evaluation & Communications Specialist and the Community Outreach Officer will continue to manage project information and communications with the Government, public and media in Year Three. LESSP provides quarterly progress reports to USAID, as well as frequent informal presentations and reporting to GOL stakeholders and donors on LESSP progress, challenges and achievements. Formal public events will be developed as well, to include media coverage through radio and press. All formal events and presentations will comply with the approved LESSP Branding and Marking Plan.

Much of LESSP's Communications and Outreach activities in Year Three will focus on the four pilots in Bong, Lofa and Nimba counties, including formal project launch activities. Also in Year Three, work will continue to fully train the cooperative board members for institutional development of the cooperatives.

9 MONITORING, EVALUATION AND COMMUNICATIONS

LESSP provides Quarterly Progress reports to USAID, Financial Reports and Annual Reports. The MEC Specialist will continue to provide site visit checklist reports on a quarterly basis, recording progress towards the completion of key results based on quality criteria and to ensure that all associated stakeholders and beneficiaries participate and perform in the implementation of the project from all LESSP project sites. LESSP also maintains a revised Performance Monitoring Plan (PMP) that describes linkages between the project inputs/activities and expected results and objectives, and identifies indicators and targets for measuring program success.

A. Monitoring Quality of Services

In order to address the quality of services provided by LESSP, periodic evaluations will be carried out as a way to determine effectiveness of trainings being conducted during the program. Trainees will be monitored and interviewed at several points. This information will be used to design potential interventions to improve the services being provided. Youth and Women are integral part of this program, and the quality of their work is key to the success or failure of the program. As a result, it is important to ensure that they are being provided the highest quality of capacity building and support and their knowledge, attitudes, and skills will be assessed at multiple intervals during the program.

B. Data Dissemination and Use

Analyzing program information, providing feedback to improve ongoing activities, and planning for upcoming activities are important contributions of the Project. During regular staff meetings, analyzed program information is used in the program review process.

The regular system of program information sharing and interaction with field program staff will enhance the local capacity for monitoring and evaluation. An important function of managing information is to disseminate program information with the intent of helping to improve field program activities.

As a requirement of USAID/Liberia, LESSP revised its PMP in consultation with the Liberia Monitoring & Evaluation program (LMEP) in October 2013. This PMP will be updated to reflect recent contract modifications under Objective 3 and submitted to LMEP and upon their approval to USAID.

The LESSP Monitoring, Evaluation and Communication Specialist oversees the program's indicator management and data tracking as detailed in the PMP, working closely with Objective team leaders to link with implementation activities.

10 CROSS CUTTING ISSUES

In Year One, LESSP developed a Cross-Cutting Issues (Gender, Youth, ICT) Integration Plan to serve as a guide to the LESSP team throughout the implementation of project activities to keep cross-cutting issues at the forefront of planning, design, training, community ownership transfer, as well as the selection of beneficiaries and trainees. With its focus on improving energy infrastructure, LESSP activities and results can positively impact some cross sector areas important to USAID including local capacity building, democracy and governance, environmental sustainability and economic growth. With this work plan's activities, LESSP will continue to consider ways to integrate youth, gender and information and communication technology (ICT). For example, to the extent practicable, LESSP will continue to:

- Provide employment opportunities to Liberians in the implementation of the construction of pilot plants and electricity sector value chain.
- Build capacity of Liberian local government, women, and youth to manage and maintain electricity infrastructure.
- Increase citizen's participation with local government on the identification and prioritization of community needs for electricity access.
- Support local communities and governments to leverage private resources to provide affordable and accessible electricity services.
- Encourage community participation and empowerment in the planning, design, construction, and maintenance of electricity infrastructure.
- Demonstrate the US commitment to Liberia's reconstruction and poverty alleviation.

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