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USAID NIGERIA RENEWABLE ENERGY AND ENERGY EFFICIENCY PROJECT (REEEP)

FINAL PROGRESS REPORT

MARCH 3, 2014 – MARCH 2, 2018

COOPERATIVE AGREEMENT NUMBER: AID-OAA-L-11-00002

May 31, 2018

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FINAL PROGRESS REPORT

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Cover Photo: Alabi Abiodun of Rubitec Solar of the Gbamu Gbamu minigrid project [November 28, 2017].
Photo credit: Winrock International/Bobby Neptune

PURPOSE OF THIS DOCUMENT

This document serves to fulfill both the last Quarterly Report and the Final Report of the United States Agency for International Development (USAID) Nigeria Renewable Energy and Energy Efficiency Project (REEEP). The cooperative agreement for this project, implemented by Winrock International (WI) began on March 3, 2014 and ended March 2, 2018. REEEP was implemented under USAID associate cooperative agreement number AID-620-LA-14-00001, under the Leader Cooperative Agreement Number AID-OAA-L-11-00002.

This document reports the accomplishments of the REEEP on its fourth year of implementation, covering the period March 3, 2017 to March 2, 2018 as well as the life of project achievements.

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ABBREVIATIONS AND ACRONYMS

AMORE	Alliance for Mindanao Off-Grid Renewable Energy
AtRE	Access to Renewable Energy Program
BOI	Bank of Industry Nigeria
CAWP	Corrective Action Work Plan
CBN	Central Bank of Nigeria
CDM	Clean Development Mechanism
CE	Clean energy
CHAI	Clinton Health Access Initiative
CO_2	Carbon dioxide
COP	Chief of party
COREN	Council for the Regulation of Engineering of Nigeria
CREN	Council for Renewable Energy of Nigeria
DCA	Development Credit Authority
ECN	Energy Commission of Nigeria
ECREEE	Ecowas Centre for RE & Energy Efficiency
GDA	Global Development Alliance
GHG	Greenhouse gas
GIZ	Gesellschaft für Internationale Zusammenarbeit
GON	Government of Nigeria
IBTC	Investment Banking and Trust Company Chartered
IEC	Information, education, and communications
IPP	Independent power producer
IRENA	International renewable energy agency
KWh	Kilowatt hour
LASMI	Lagos State Microfinance Institution Initiative
LPGDCA	Loan portfolio guarantee program
MARD	Ministry of Agriculture and Rural Development
MDA	Ministries Departments and Agencies
M&E	Monitoring and evaluation
MFB	Micro Finance Bank
MFI	Microfinance institution
MoP	Ministry of Power
MT	Metric Ton
MW	Megawatt
MSMEDF	Medium and Small Enterprises Development Fund
NAEE	Nigeria Alternative Energy Expo
NIA	Nigeria Institute of Architects
NAPTIN	National Power Training Institute of Nigeria
NBTS	National Blood Transfusion Service
NCS	Nigeria Customs Service
NEMSA	Nigerian Electricity Management Services Agency
NESP	Nigeria Energy Support Project
NERC	National Electricity Regulatory Commission
NGN	Nigerian Naira
NPHCDA	National Primary Health Care Development Agency
NTT	Nayo Tropical Technology
O&M	Operations and maintenance
PEPFAR	Presidential Emergency Plan for AIDS Relief
PFAN	Private Financing Advisory Network
PV	Solar photovoltaic
RE/ EE	Renewable energy/ Energy Efficiency
REEEP	Renewable Energy and Energy Efficiency Program
REMP	Renewable Energy Master Plan
RUWES	Rural Women Empowerment Scheme
SHP	Small hydro power
SME	Small and medium enterprise
STTA	Short-term technical assistance
SON	Standard organizations of Nigeria

I. PROGRAM OVERVIEW

Table 1. Program Summary

Program Name:	USAID Nigeria Renewable Energy and Energy Efficiency Project (REEEP)
Activity Start Date and End Date:	March 3, 2014 – March 2, 2018
Name of Prime Implementing Partner:	Winrock International
Agreement Number:	AID-OAA-L-11-00002
Name of Sub awardees:	Crimson Capital, Butler Law, EUCORD
Major Counterpart Organizations	Gesellschaft für Internationale Zusammenarbeit GIZ
Geographic Coverage (cities and or countries)	All States of Nigeria
Reporting Period:	FY 2017

1.1 PROGRAM DESCRIPTION

USAID's Renewable Energy and Energy Efficiency Project (REEEP) in Nigeria seeks to improve access to renewable energy (RE) technologies; improve access to finance for renewable energy technologies; and use renewable energy technologies to improve various sectors such as health and agriculture. The activity is designed to help mitigate climate change, reduce carbon emissions, increase economic opportunities, improve employment and, ultimately, sustain development in Nigeria. To achieve these, REEEP is undertaking the following tasks:

Task 1: To increase access to clean energy financing for project developers

This component focuses on developing the capacity of companies in the clean energy sector and other selected sectors that would benefit from using RE through targeted training and capacity-building interventions. Winrock focused on small and medium-scale enterprise (SME) private sector investments in clean energy to increase their access to finance for renewable energy and energy efficiency (EE) activities.

Task 2: To provide technical assistance to financial institutions

Most Nigerian banks follow a highly conservative process of lending to businesses, sometimes requiring collateral worth 200 percent more than the actual loan value. As a result, most Nigerian businesses have little or no access to commercial credit. Moreover, RE/EE lending is generally seen as presenting additional risk because most financial institutions do not know how to calculate credit-risk analysis for RE/EE activities. Many lenders are skeptical that meaningful cash flow can be generated from RE/EE activities or doubt that the cash flow can be relied on to repay loans. Under Task 2, Winrock provided technical assistance to financial institutions to encourage lending on more favorable terms to RE/EE project developers and for RE/EE technology.

Task 3: To provide training standards promotion.

A major challenge encountered in RE and EE project development in Nigeria is the lack of qualified and competent technical support staff to install and maintain systems, and the people's low awareness of

technology and its benefits. Under Task 3, Winrock implemented a series of promotional campaigns to increase public awareness and, in coordination with the industry players, set standards meet RE/EE technical capacity requirements in Nigeria.

Through these interventions, REEEP achieved tangible reductions in greenhouse gas emissions over the short and long term while creating an enabling environment for investment, decision-making, and operational climate, for private and public sector participation in the clean energy sector. The long-term impact of these policy and reform interventions will result in poverty reduction, private sector-led growth, energy security and energy access for the Nigerian people.

Note: The Results Performance Column depicts level of achievement expressed as a percentage of Actual versus Planned.

1.2 SUMMARY OF LIFE OF PROJECT ACCOMPLISHMENTS TO DATE

Table 3. Summary of Life of Project (LOP) Accomplishments to Date

Project Indicators	Project Baseline	YEAR 1			YEAR 2			YEAR 3			YEAR 4			YEAR 5			LOP Target	LOP Actual	% of LOP Target
	Value	Target	Actual	% of Target	Target	Actual	% of Target	Target	Actual	% of Target	Target	Actual	% of Target	Target	Actual	% of Target			
REEEP Goal: Energy Access Increased																			
G.1: Number of new grid and off-grid actual direct connections.	0	N/A			N/A			3,000	3,781	126%	10,000	8,122	81%	2,000	4,732	237	15,000	16,635	111%
G.2: Number of MW that have been commissioned	0	0.045	0.0048	11%	0.085	0.0985	116%	0.65	0.0972	15%	0.97	0.7466	77%	0.25	1.2	480	2	2.15	108%
G.3: Greenhouse gas (GHG) emissions, estimated in metric tons of CO2e, reduced, sequestered, and/or avoided as a result of USG assistance.	0	186	905,808.15	N/A	1,100,000	1,122,186	102%	1,300,000	1,282,596	99%	1,100,000	856,294	78%	500,000	377,385	75	4,000,000	4,544,269	114%
IR 1: Access to RE/EE financing improved																			
1.1: Expected lifetime energy savings from energy efficiency or energy conservation as a result of USG assistance or Power Africa partner activities		1,774	189.2	11%	3,351	3,725	112%	26,280	3,827	15%	38,237	29,188	76%	9,855	48,092	488	78,840	85,021.2	108%
1.2: Number of beneficiaries with improved energy services, including biogel fuel	0	100	10	10%	35,700	45,545	127%	35,000	61,642	176%	24,000	114,929	479%	5,200	39,812	766	100,000	261,938	262%
IR 2: Capacity of private sector entities developed																			
2.1: Total public and private funds leveraged by USG for energy projects	0	300,000	112,500	38%	1,600,000	$606,250	38%	3,900,000	99,000	3%	4,200,000	672,409	16%	$900,000	$671,580	75	10,000,000	2,161,739	22%

2.2: Number of clean energy certification standards established		N/A	N/A	N/A	N/A	N/A	N/A	4	5	125%	2	2	100%	0	0	0	6	7	117%
Cross-Cutting Project Indicators																			
C.1: Person hours of training completed in technical energy fields supported by USG assistance (Standard Indicator 4.4.1-34)	0	1,000	1,104	110%	1,000	908	91%	6,000	11,247	188%	2,000	17,728	886%	0	0	0	10,000	30,987	309%

1.3 SUMMARY OF ACCOMPLISHMENTS FOR YEAR FOUR

Table 2. Summary of Numerical Accomplishments for FY 2017

Standard Indicators	FY 2018 TARGET	Q1 FY18	Q2 FY18	Q3 FY18	Q4 FY18	FY18 TOTAL	Accomplishment at the end of reporting period (%)
Ind. G.1: Number of new grid and off-grid actual direct connections (Power Africa Ind. #5)	2,000	4,732				**4,732**	237%
Ind. G.2: Number of MW that have been commissioned (Power Africa #12 replacing Standard Indicator # 4.8.2-32).	0.25	1.2				**1.2**	480%
Ind. G.3: Greenhouse gas (GHG) emissions, estimated in metric tons of CO2e, reduced, sequestered, and/or avoided as a result of USG assistance (Power Africa Ind. #24)	500,000	377,385				**377,385**	75%
Ind. 1.1: Expected lifetime energy savings from energy efficiency or energy conservation as a result of USG assistance or Power Africa partner activities (Power Africa Ind. #26)	9,855	48,092				**48,092**	488%
Ind. 1.2 Number of beneficiaries with improves energy services, including bio gel fuel	5,200	39,812				**39,812**	766%
Ind. 2.1: Total public and private funds leveraged by USG for energy projects (disaggregated by DCA and non-DCA sources)	$900,000	$671,580				**$671,580**	75%
Ind. 2.2: Number of clean energy certification standards established	0	-				-	-
C1: Person hours of training completed in technical energy fields supported by USG assistance (Output; Power Africa Ind. #23)	0	-				-	-

2. ACTIVITY IMPLEMENTATION PROGRESS

2.1 PROGRESS NARRATIVE

The USAID Nigeria Renewable Energy and Energy Efficiency Project (REEEP) is a four-year activity (March 2014 – March 2018) to facilitate the development and financing of the renewable energy and energy efficiency market in Nigeria. The activity provides technical assistance and contributes to USAID's goal of developing Renewable Energy (RE) and Energy Efficiency (EE) markets in Nigeria.

Led by the Winrock International Abuja-based team, the activity seeks to address three component areas that are critical to increase access to renewable energy and energy efficiency technologies in Nigeria.

- **Component 1:** To increase access to clean energy financing for project developers.
- **Component 2:** To provide technical assistance to financial institutions.
- **Component 3:** To provide training standards promotion.

REEEP worked with investors and financial institutions, developing and cultivating a pipeline of bankable projects (both financial and technical), supporting technical training institutions and providing capacity building, as well as strengthening relationships and forging partnerships with government officials, NGOs, and other international donors. Looking back at its four years of operation, REEEP helped increase the technical capacity of project developers, improved the knowledge and willingness of local and international investors to support the market, and created the technical training infrastructure needed to grow the RE/EE sector.

During the project's tenure, Nigeria faced a difficult economic crisis, which began to improve during the last year of the project. Within the last 12 months, the Central Bank of Nigeria (CBN) allowed commercial banks to raise customers' international dollar spending limit by 900% and improved dollar liquidity in the market with sustained interventions. The CBN is said to have pumped over $6 billion into key segments of the economy within the quarter, an initiative that has strengthened the naira against the dollar. While the increased liquidity in the FX market did help re-activate the imports of self-financed RE/EE equipment to Nigeria and thus the sector itself, banks are still reluctant to lend to this import-reliant sector. Bank balance sheets remain weak as a result of the struggling economy, forcing the banks to adopt risk adverse lending practices and leaving the RE/EE sector closed off from any credit, at least locally. Obviously, this situation made it difficult for REEEP to facilitate finance through the local banking system during the last three years and required REEEP to find alternative sources of investment, such as crowdfunding. After supporting crowdfunder Bettervest to set up operations in Nigeria, REEEP helped facilitate funding for several projects. Two other projects are currently in process and the financing window continues to operate with at least an additional three projects expected to be floated in March/April REEEEP expects the Bettervest funding opportunity to stay active well beyond the projects ending and continue to provide much needed liquidity to the RE/EE sector.

The project achieved its main development objectives, whose impacts, like Bettervest's funding opportunities, will be felt well into the future of the RE/EE sector in Nigeria. The influence of REEEP's interaction and capacity building with local banks can already be seen, as they continue to embrace the technology and seek to further increase their activities in the sector. In spite of the difficult economic situation, most of REEEP's banking partners are indicating their willingness to begin lending to the sector in 2018 and many are structuring specialized teams within their organizations (FCMB, Accion). Due to REEEP's training, project partners' technical skills have improved considerably, resulting in much higher

quality installations and improving the perception of product reliability. To ensure the sustainability of this work, REEEP worked with 12 established training centers, which will continue to conduct the training after REEEP finishes, and developed a national certification system for RE practictioners. Not only does the certification system improve the quality of systems but also supports businesses, institutions, and investors to find reliable solar suppliers.

All of these achievements give REEEP the confidence that it delivered upon its main objectives; however, upon reflection, there are three activities which will have the most impact and of which REEEP is most proud. These are:

1. **RE/EE Training and Certification-** The completion of the certification system for RE practitioners marks a major milestone for the sector, as Nigeria now has the infrastructure needed to build the technical capacity and grow the RE sector. Quality service providers will decrease the low quality perception most Nigerians have toward the sector, building market demand. It cannot be overestimated what an achievement this is, not only for REEEP, but for the RE sector as a whole.

2. **Mini Grids-** GIZ NESP and USAID REEEP collaborated to develop a template for mini grids in rural communities, which can be replicated and used to service large portions of the un-electrified. The partners developed a model for five initial mini grids in five states (Cross River, Niger, Ogun, Plateau and Sokoto) as a proof of concept, and a subsequent stage of an additional 20 mini grids. Up to now, the mini grid sector had been unable to take off in Nigeria, but the example set by these projects will encourage new participants to enter the market. The catalytic effect of these mini grids for expanding the sector will result in cost effective electrification and increased economic opportunities.

3. **REEEP-Bettervest Financing Partnership**- REEEP worked closely with Bettervest to fill the gap in financing for RE projects left by the FX crisis in Nigeria. Not only did the partnership make crowdfunding a reality, but also led to the landmark achievement of financial closure for five RE/EE projects. Nigeria finally has a functional and viable source of funding for projects in the USD $100K - $500k range. This is a major achievement for a sector that has not been able to access any loans in the last two years. See Annex 10 for more details on the REEEP-Bettervest partnership.

Most importantly, these achievements, which will have a profound and lasting impact on the sector, are examples of what can be accomplished when multiple players in a sector combine their efforts to move the market forward. None of these successes would have been possible without the working partnerships REEEP developed with GIZ-NESP and Bettervest; alone none would have succeeded, but together the projects were able to achieve their goals and more. Indeed, it is only thanks to these partnerships, that a small project of the size and budget of REEEP was able to have such a large and lasting impact on the RE/EE sector. The REEEP experience shows that even a very small project can have an important effect on a sector if it leverages its capacities with those of other development actors. If nothing else, this is a lesson well worth remembering.

Quarterly Progress

2017 was the last full year of REEEP operations. During the last four months of its activities, project partners continued to provide very impressive results in terms of connections and MW installed while at the same time receiving training and building up their internal capacities. Additionally, this quarter, REEEP continued to provide support to our training partners and worked with NESP to hand over control of the Certification System and ensure its sustainability in the Nigerian market.

During the last four months of operations, REEEP undertook the task of winding down operations and ensuring sustainability of the gains it fostered in the RE/EE sector. To do this, REEEP worked closely with partners and other stakeholders to hand over services or direct them to upcoming opportunities in the market. This included collaborating with NESP to seamlessly transfer control of the Certification System and guarantee continued support for it, transferring the Technical Assessment Service to REAN, and working with USAID CEADIR to transition the financial institution training responsibilities. REEEP informed project developers of new opportunities in the future and where to find support services. Additionally, REEEP prepared a Resource Book that was distributed to its stakeholders, which not only included basic information on the project, but also the lessons learned during its tenure and its hopes for the future of the RE/EE sector. The Resource Book also contains the list of technically assessed vendors and a pipeline of quality, technically-sound projects looking for finance. (See Annex 1 for the Resource Book).

Despite winding down its activities, during its last four months of operations, REEEP continued to provide technical and advisory support to project developers, financial institutions and government partners to promote the growth of the RE/EE sector. In order to support the development of the industry, catalyze investment and accomplish USAID's objectives for the RE/EE sector in Nigeria, the REEEP team undertook several important initiatives, including:

- **Mini Grid Commissioning** – As previously reported, REEEP worked in partnership with NESP to set up and finance five mini grids in Nigeria. These efforts came to fruition in the last quarter, with the commissioning of all four mini grids in January. All four are now fully operational. This is the culmination of a great effort and partnership between REEEP and NESP. To commemorate the work, the Counsel Generals of Germany, the European Union and USA attended and spoke at the commissioning ceremony for the Gbamu Gbamu Mini Grid in Ogun State. Together these mini grids will provide power to over 5,000 previously un-electrified Nigerians and generate new economic opportunities in these communities. (For a report on the work and impacts of the mini grid in Gbamu Gbamu see Annex 2.)

- **SOSAI:** During the quarter, REEEP again assisted SOSAI to access finance through two additional tranches, which will provide an additional 500 Solar Home Systems (SHS) on a Pay-As-You-Go (PAYG) basis for rural un-electrified communities. Previously, REEEP had assisted SOSAI with its first tranche of financing where it received $130k through Bettervest. During this last quarter the two tranches were launched and fully subscribed, resulting in a combined USD $300k of finance for 1,000 SHS units.

- **GVE-** REEEP also provided technical training, capacity building and assistance to GVE to finance their first pilot mini grid activity. The activity was financed again through the German crowdfunding company Bettervest. GVE received $310K and is already delivering power to 300 households encompassing over 2,500 people. This transaction is a re-financing operation to liberate the equity that was used to construct the mini grid.

- **Accion MFI Nigeria**- REEEP provided technical assistance, advisory services and training on Pico solar products aimed for the micro finance sector. The main areas of cooperation were technical assessments of products and client portfolio analysis. During 2017, Accion began its RE/EE activity and began selling RE/EE products (assessed by REEEP) to their clientele.

- **Demsa Integrated Rice Production Activity-** REEEP provided technical advisory services and access to finance assistance for a 5,000-hectare rice farm in Adamawa State. In previous quarters, REEEP presented Demsa with a feasibility study and a solar design options analysis report. During the last four months, REEEP supported the tender process by preparing the Design Build

Guidance Criteria and recently finalized the Request for Proposals, which, at the time of drafting this report, has not yet been made public. The activity will begin construction early this year and once completed, it will be the largest solar irrigated farm in Africa.

- **Bettervest-REEEP Partnership:** REEEP continued its partnership with German impact investor Bettervest. Working with Bettervest during this period, two additional tranches were fully financed for SOSAI and the GVE mini grid was financed. This quarter, REEEP provided due diligence reports on three additional transactions for Havenhill, ColdHubs and Avenim Lynks, all of which are expected to be floated in the March/April 2018 (See Annex 10 for more details on the REEEP-Bettervest partnership.)

2.2 IMPLEMENTATION STATUS

Due to an exceptionally challenging financial environment as detailed above, Winrock worked with USAID to re-focus its strategy in FY 2017 to better achieve its objectives. The new strategy emphasized training and technical assistance to viable RE/EE projects to overcome the new, higher hurdles to achieve financing. REEEP's re-targeted portfolio of activities included:

- Increasing technical assistance, training and support to project developers to improve the technical capacity of staff;
- Developing and cultivating a pipeline of bankable projects in need of assistance (both financial and technical);
- Creating relationships with government officials to help change policies that will lead to increased RE lending;
- Working with NGOs and other international donors to advance quality RE standards; and
- Forging partnerships with technical training institutions.

Component 1: Access to clean energy financing

This component focused on developing the capacity of companies in the clean energy sector and other businesses that would benefit from using RE through targeted training and assistance. Building the capacity of these businesses and increasing access to finance for RE/EE projects, has helped them reduce some of the sector's constraints and increase competitiveness. The REEEP transaction team continued to develop the pipeline of RE/EE projects seeking finance by viable companies. Winrock works to determine companies' bankability by conducting financial due diligence and technical assessments, then introducing relevant companies to potential lenders. This pipeline contributes to the growth of the RE/EE sector in Nigeria by building market demand and providing companies and investors with high quality and reliable solar suppliers. REEEP worked closely with REAN to hand over the Technical Assessment Service, which will continue to empower dependable suppliers and address the low quality perception problem.

Over the length of the project, REEEP partners and recipients of our technical assistance collectively installed **2.15MW** of clean energy generation on different projects, which resulted in **16,635** new connections. Of this, **1.2MW** of clean energy generation from **4,732** new connections were installed during the first quarter of FY18 and the last month of the project of January 2018 (see Annex 5 for a list of connections per developer for the last quarter). This shows how much groundwork the REEEP project had to lay before beginning to achieve new connections and generate clean energy. As it can be noted from the table below, **REEEP exceeded all of the length of project targets in this component**. **Cumulatively, the project has achieved 144% of its indicators**.

The results for year five and the entire project under this component are listed below:

Standard Indicators	Y5 Results	Project Total	% LOP Completed
Ind. G.1: Number of new grid and off-grid actual direct connections	**4,732**	**16,635**	**111%**
Ind. G.2: Number of MW that have been commissioned	**1.2**	**2.15**	**108%**
Ind. G.3: Greenhouse gas (GHG) emissions, estimated in metric tons of CO2e, reduced, sequestered, and/or avoided as a result of USG assistance	**377,385**	**4,544,269.15**	**114%**
Ind. 1.1: Expected lifetime energy savings from energy efficiency or energy conservation as a result of USG assistance	**48,092**	**85,021.2**	**108%**
Ind. 1.2 Number of beneficiaries with improves energy services,	**39,812**	**261,938**	**262%**

REEEP faced a long path to lay the necessary groundwork needed to be able to provide the technical training and capacity building. In order to facilitate a high number of RE/EE connections, REEEP first needed to build the capacity and quality of Nigerian RE/EE firms in this sector. Because no quality standards existed in Nigeria, REEEP had to first create curricula for seven RE/EE qualifications and their corresponding certification examinations. REEEP then used these standards to train project developers, who then had the capacity to design, install, and maintain RE/EE projects that can then be counted toward REEEP's indicators. Once this infrastructure was completed it began yielding results very quickly.

Furthermore, if REEEP had been given additional time to mature, the impact of the project to the sector would have been even greater. Although other actors are taking over the management of some of REEEP's services, no entity will be solely devoted to access to finance for project developers. Winrock believes this will be a gap in the sector that a donor like USAID could fill.In addition to providing financial training and advisory services related to lending, REEEP also provides other types of advice and support to RE/EE companies on an as needed basis. For example, REEEP worked closely with the Demsa Irrigated Rice Project, which will include a solar irrigation system for a commercial rice farm of over 5,000 hectares in Adamawa state in northeast Nigeria. Once finished, this will be the largest solar irrigation system in West Africa with an estimated 830 kW of solar PV providing most of the water for 10,800 tons of rice products annually. Moreover, the company is pioneering a "private-traditional partnership" that will provide irrigation to 2,800 smallholder farmers in the area. This aspect of the project is particularly critical, given that the farm is located near a region with an unfolding humanitarian situation that is leaving an estimated 3.2 million people in a food crisis situation. Therefore, this project will be integral to contributing to the food security and economic growth of the region.

Through REEEP, Winrock provided an array of advisory services for the solar irrigation component of the project. REEEP investigated potential solutions that would provide cost savings compared to diesel-powered generation and devised a hybrid system design that is estimated to more than halve the overall cost of irrigation. REEEP also assisted the company to draft the solar PV tender documents for the first phase of the development. The project's developers expect procurement to take place in the coming months and construction to begin in the second half of 2018. Unfortunately, this means that the project's impact cannot be included in REEEP's final indicators, despite the assistance given by REEEP. However, this

project will be an important contribution to the RE sector in Nigeria, demonstrating the possibilities and development outcomes of solar-powered irrigation systems.

Likewise, Winrock conducted additional activities throughout the life of the project that supported the first component of enabling companies to access finance. During the last quarter of the project, REEEP ensured these activities were either completed or that next steps were firmly established and understood by all partners. These activities, along with the steps REEEP took to finalize them, are listed below:

- Managed a pipeline of potential project developers. This list is particularly valuable to international financiers, lending institutions, and other donor partners who are financing RE/EE projects and/or building a pipeline of quality vendors. During the last quarter, REEEP conducted a final update and publicized the list to all of REEEP's partners at REEEP's close-out event and in soft copy form via direct email. Doing so, supports new relationships between developers and financiers after REEEP ends, further fostering the growth of Nigeria's RE/EE sector. (See the Annex 1 Resource Book for the project pipeline).

- Continued to make B2B connections between Nigerian developers and other industries seeking solar technologies. During the last quarter, REEEP introduced a poultry producer called Anadariya Farm to possible suppliers and lenders. Nayo Tropical Technologies and Starsight both visited the farm in Kano and are working on providing design and financing possibilities. The farm is being considered for a loan under Deutsche Bank's Africa Agriculture and Trade Investment Fund (AATIF). Currently Anadariya is conducting internal restructuring and continuing ongoing discussions with the bank.

- Recommended projects to investors and lending institutions. For example, in the last months of the project, REEEP held meetings with Deutsche Bank and Greenmax Capital on projects in REEEP's pipeline they may be interested in.

- Provided the Due Diligence Guidelines for mini grids that were created last quarter to Acumen Fund and other interested parties (see Annex 3 for the Due Diligence Guidelines).

Component 2: Technical assistance to financial institutions

Under this component, Winrock provides technical assistance to financial institutions to encourage lending with favorable terms to RE/EE project developers and for RE/EE technologies. Although this effort was initially focused on supporting Ecobank and its USAID DCA loan guarantee, it was strategically expanded to include support for additional financial institutions, investors, and MFI's. REEEP provides technical assistance to renewable energy loans, encourages equity investments into renewable energy companies, and advocates for government policies and programs that increase lending from financial institutions to renewable energy activities. Actions to date have not only helped to expand the knowledge base of participating financing institutions, but have also resulted in the set up of funds specific to RE/EE lending in Nigeria.

Access to finance for the RE/EE sector was particularly challenging during the length of the project, due to the foreign exchange crisis. Bankers viewed the renewable energy sector as too risky to extend loans, due to the compromised position of their lending balance sheets and the dearth of financial products that support this emerging industry. Under such a difficult financial environment, REEEP's ability to facilitate financing for the sector was undermined. While the results for this component are far from REEEP's length of project targets (only 22%), under the present economic conditions the fact that REEEP has been able to leverage *any funds at all* is significant for the sector.

Thanks to REEEP's willingness and ability to find alternative sources of funding, REEEP was able to facilitate finance for some projects. This meant diversifying away from local lenders toward other foreign sources of funding. While the local banks refused to finance any RE/EE project, even under the most favorable of conditions (grants, credit guarantees, etc.), German crowdfund Bettervest, financed exclusively with German private investors, became the leading source of funding for the small to mid-size ($100-$500k) range of RE/EE projects in Nigeria. This innovation is extremely encouraging to the sector, not just in Nigeria, but also throughout the developing world, because crowdfunding can fill a market gap that traditional investment mechanisms fail to reach. Bettervest's funding was particularly important for the off-grid mini grid segment of the sector, which is discussed in more detail in the mini grid section below.

Cumulatively, REEEP facilitated over **$2.1m USD** of credit to projects, including off grid mini-grids, pay-as-you-go solar home systems, and commercial solar systems at banks and other businesses. During the project's last quarter, the REEEP activity was able to facilitate credit for three RE/EE projects through the Bettervest crowdfund for a total of over **USD $671k,** which represents one-third of the total credit facilitated. Two of the projects were the second and third tranche of funding for Sosai, which will provide 750 solar home systems for Nigerians in rural areas. The third project was a mini grid implemented by GVE. This activity will provide capacity for about 300 connections, electrifying 1,620 people. Finally, this quarter REEEP finalized a technical assessment on Havenhill Energy for Bettervest, which will list the project on their website in the coming weeks. The project is expected to be fully financed. (See Annex 10 for a success story on the partnership with Bettervest.)

The results for the quarter and the year under this component were as follows:

Standard Indicators	Y5 Results	Project Total	% LOP Completed
Ind. 2.1: Total public and private funds leveraged by USG for energy projects	**$671,580**	**$2,161,739**	**22%**

The impact of REEEP will continue to be felt after the project has ended thanks to the due diligence and technical assistance conducted by REEEP this quarter on three projects for Bettervest. If accepted, the projects will be listed on the site and funded, typically, in two to four months. As mentioned above, Bettervest already approved Havenhill Energy's project for a mini grid. REEEP also completed the technical assessments on two projects: cold refrigeration units for markets and produce cooperatives operated by ColdHubs Ltd. and a bio-waste project by a poultry farm called Avenim Lynks.

In addition to working closely with Bettervest to facilitate credit, REEEP provided technical assistance, advisory services and training on Pico solar products aimed for the micro finance sector. The main areas of cooperation were technical assessments of products and client portfolio analysis. One of the MFI's, Accion, launched their Brighta Solar products on the market during the last quarter of the project.

This component also provided advisory services to domestic banks interested in utilizing RE/EE technologies for their own institutions. For example, REEEP conducted energy audits of CUSO International's MicroFinance partner banks to assess the possibility of migrating to solar as their primary energy source. The audit's results were presented to CUSO International on 10 February 2018. REEEP recommended that the banks quickly employ easy energy efficiency measures, such as LED lamps, smart compressor air conditioning units, and LED computers, to receive immediate cost savings. Running fully on solar would require a high investment for the bank, so instead, REEEP proposed smaller solutions that are less capital intensive. Such solutions included outfitting ATMs with solar panels, and partnering with solar-as-a-service or solar finance companies to provide off-balance sheet options. See Annex 12 for the final audit report submitted to CUSO International.

Mini Grids

Due to domestic banks' reluctance to lend to the RE/EE sector, REEEP had to find another way to support companies to access finance for off-grid mini grid projects. These projects power whole villages and reach off-grid consumers that do not have any other options to access energy. REEEP partnered with GIZ NESP to develop a public-private partnership (PPP) model that allows for a smart combination of subsidies and private investment. This ensures project sustainability and makes mini grids more attractive for private investors. Over the past two years, the collaboration with NESP has led to the development of five mini grids for rural communities in Nigeria. In order for these projects to succeed, crowdfunding through Bettervest was required to facilitate investment. It is very representative of local lenders' attitudes towards RE/EE projects, that a German Crowd fund, exclusively for German investors, is the only available source of funding for RE/EE activity's in the USD $100K - $500k range in Nigeria. However, this source of funding is a major and notable achievement for a market sector that has not been able to access any loans in the last two years.

In partnership with GIZ and Bettervest, REEEP supported the financing of several mini grids. Rubitec Solar received a loan in the 3rd quarter of FY 2017 and Nayo Tropical Tech received $270k in the 4th quarter. In the first quarter of FY 2018, both of these grids were officially commissioned. Rubitec hosted a high-level commissioning event with the United States and German Counselor Generals on 9 February 2018. Nayo Tropical Tech was fully installed and began operations in late January. These grids are two of five mini grids in partnership with GIZ NESP and Bettervest. A third company, Go Solar, received $300k through Bettervest in the first quarter of 2018 for their mini grid project that will provide power to 2,000 people. GVE listed a mini grid project on the Bettervest site in early January, which is currently over 50% funded. Finally, this quarter REEEP completed the due diligence for another mini grid project by Haven Hill. Their project was listed on Bettervest in February, but as of the time of this report, funding had not yet been opened. However, they are expected to receive the full financing of $74k within a couple of months.

Furthermore, REEEP developed a possible mechanism to operationalize lending for the mini grid sector through Maristem, an on-lender of the CBN. Maristem's mandate requires their profits to be invested into projects with development outcomes. Thanks to lobbying efforts by REEEP and the US government, the CBN agreed to provide $5 million for mini grid projects throughout Nigeria. During this quarter, REEEP finalized as much as possible the next steps for launching this mechanism by supporting Maristem to draft a concept note of the partnership and bringing it to the CBN for approval. Next, Maristem will draft criteria for mini grid projects to meet in order to receive financing through this agreement. GIZ NESP II will carry on where REEEP left off, ensuring that this arrangement becomes operational. Since this money will be used for RE mini grids and NESP aims to establish 20 to 30 mini grids, NESP has a vested interest in completing this work. This mechanism will carry on REEEP's work in the sector long after the project ends.

To provide further support for the Mini Grid Sector, REEEP, in collaboration with NESP, developed a Mini Grid Due Diligence Guideline (see Annex 3) to help investors, financial institutions and other stakeholders understand the risks of these types of projects and how to mitigate them. The idea is to provide possible investors with a valuation tool and checklist they can use to analyze mini grid projects and make informed decisions that will contribute to increased funding for the sector. In November, these guidelines were presented to banks, investors, and other stakeholders during the WAPIC conference and to all members of the USAID Energy IP group. Additionally, REEEP has shared the guidelines with all relevant partners.

Winrock's assistance to financial institutions has allowed these lenders to more effectively assess the options and risks of RE/EE opportunities, laying the groundwork for more successful allocation of capital while supporting the expansion of the RE/EE sector in Nigeria. The strategy of supporting equity and

other foreign investment providers, such as Bettervest, while continuing to be responsive to the requests and obligations of REEEP's institutional banking partners, is a critical hedge until the economy and foreign exchange situation improves. Until then, facilitating alternative investment like Bettervest is critical for the off-grid sector. As a result, once the current foreign exchange difficulties pass, REEEP's institutional banking partners will have a higher capacity and a strong pipeline of projects that can be deployed.

Component 3: Training Standards Promotion

A lack of technical standards and expertise in the RE/EE field in Nigeria has led to many poorly designed, installed, maintained, and serviced projects in country. These poor quality projects often fail and have disproportionately contributed to the notion that RE is not a viable solution to meet energy needs in Nigeria. This problem stems from both the lack of technical training available to RE professionals and students and the lack of enforceable standards from government agencies. An enabling environment that ensures professional and technically capable RE companies is a necessary condition for the development and widespread adoption of RE technologies. Additionally, there is low public understanding of the financial and environmental benefits of the use of clean energy.

At the start of REEEP, Nigeria had no source of technical training for RE/EE practitioners and the situation was quite grim. The industry had for years been building a reputation for shoddy installations and causing itself harm by creating a negative impression on the RE/EE technology. During its planning stage, REEEP underestimated the amount of capacity building that was needed to bring the sector out of this downward spiral; therefore, the project had to invest far more resources on this issue than it had originally anticipated. Nonetheless, REEEP believes that the capacity building infrastructure it leaves behind is its greatest contribution to the RE/EE sector, as it is undoubtedly indispensable for the industry. The REEEP project invested heavily in this area knowing the groundwork will reap benefits for USAID and the Nigerian RE/EE sector for years to come.

In Component 3, Winrock increased the technical capacity of RE/EE installers in Nigeria, as well as promoted standards in the use of RE/EE technologies among the developers and the general public. The absence of technical standards necessitated the collaboration between Winrock REEEP and GIZ NESP to initiate activities that developed the capacity, structure, and institutionalization of renewable energy and energy efficiency practice and industry in Nigeria. As part of the capacity development efforts, REEEP, in conjunction with NESP, developed a national certification system for RE practitioners and selected 12 training partners to this effect. In partnership with the 12 training institutions, NESP and REEEP developed training curricula designed to improve and certify capacity in seven key practice areas:

1. **Mini grid Design (Focus on solar PV and micro hydro)** Audience**:** Engineers (MGD)
2. **Solar PV Installation** Audience: Technicians (SPVI)
3. **Solar PV Installation Supervision** Audience: Technicians (SPVIS)
4. **Rural Hydropower Civil Engineering** Audience: Engineers(RHCE)
5. **Energy Management** Audience: Engineers (EM)
6. **Energy Audit** Audience: Engineers (EA)
7. **Energy Efficient Building Design** Audience: Architects and engineers (EEBD)

The results for the quarter and the year under this component were as follows:

Standard Indicators	FY5 Results	Project Total	% of Annual Completed
Ind. 2.2: Number of clean energy certification standards established	**0**	**2**	**100%**
C1: Person hours of training completed in technical energy fields supported by USG	**0**	**30,987**	**309%**

assistance (Output; Power Africa Ind. #23)			

REEEP is pleased with the results achieved in this component. With all seven professional training standards in operation, the activity has achieved **100% or more of its LOP targets** for this measure. Results in training are excellent, with the project currently being over **300%** of its project target. Overall, REEEP trained 33 developers directly (see Annex 4 for a lists of companies that sent at least one representative to a training). Given the fact that developers who complete these trainings go on to properly install and maintain quality systems thereby generating projects that combat the low perception of RE/EE products in the Nigerian marketplace, these capacity building results represent a significant return for project resources.

Training Centers

To ensure the trainings are sustainable, REEEP worked directly with 12 established training centers and academic institutions throughout Nigeria that can continue to conduct the training after REEEP finishes. Due to REEEP's support, all 12 institutions now have qualified teachers to provide the seven trainings to any business or individual who is interested to attend. In addition to developing the curricula, this is one of the major achievements of REEEP. These 12 qualified training institutions operate independently as either a for-profit entity or are connected to a university and are integral to continue the development of the sector and support its growth.

Since each institute has completed the training of trainers for several teachers, REEEP dedicated its training resources during the last quarter of the project to assisting them with administrative, operational and marketing needs. REEEP provided a training schedule sample plan to each institute to help them provide consistent delivery of each of the seven courses. For the training centers SERC in Sokoto and NCEEC in Lagos, REEEP's training specialist conducted an equipment audit for the delivery of SPVI and SPVIS courses. REEEP also conducted a session on teacher-focused training methods at the request of the institutions. Finally, most training centers lack strong marketing capabilities to attract attendees and raise awareness of the courses on offer. This quarter, REEEP provided each institute with a marketing plan that includes an analysis of key customer segments and publicity channels, as well as a strategy for shifting away from an overreliance on government sponsorship for candidates to a market-driven commercialization approach of the RE/EE training curricula. If implemented, the marketing strategy will contribute to the sustainability of REEEP's training component over the long-term in Nigeria.

Although these training bodies were already established, each center requires varying levels of support, from assistance with examinations to coaching and marketing support. NESP II will pick up where REEEP left off, ensuring the longevity of the 12 training institutes to continue offering quality training services of the seven curricula to the industry.

To ensure female participation in the sector, REEEP identified and encouraged female developers to participate in the trainings held by the 12 academic centers and directly engaged female associations. For example, in December 2017 REEEP provided a customized 3-day training on solar PV installation to members of the Female Architects of Nigeria (FAN) unit of the Nigerian Institute of Architects (NIA). Twenty-six members participated. The training provided the basics of photo voltaic (PV) systems and energy efficiency in building design. For those participants that desired to undergo further training, REEEP offered partial scholarships to attend the full 5-week certification training on Energy Efficient Building Design, developed by REEEP and NESP, at the NIA.

Certification System

The completion of the certification system for RE practitioners is another major achievement of the REEEP project. Without the ability to professionally certify the skills and expertise from the training institutions, businesses would not be able to find technically capable employees and growth of the sector would be impossible. Furthermore, a certification system addresses one of the biggest problems of the RE/EE sector in Nigeria: the perception of low quality, which in turn is fueling low demand.

In order to ensure market adoption of the certification system, there is still more work to do. It is imperative that existing RE Companies begin buying into the system and certifying their staff. Likewise, banking institutions and project funders must make certification mandatory for credit and tenders, respectively. In this way, the influence of all parties can be multiplied; the more companies that certify staff, the more market and financial institutions will insist all participants in the sector have their technical employees certified. REEEP believes that promoting adoption of certification through market forces will be more effective than trying to do so through regulations, which are cumbersome and would only create a bottleneck in the sector.

As part of this work, REEEP has been actively encouraging the adoption of requiring certification by lending institutions, donors, and other bodies. Due to these efforts, REAN will begin requiring this of their members. The IFC in Nigeria was particularly interested in recognizing the certification system. Although the IFC is currently experiencing delays, they expect to begin a partnership with two of the training partners (NAPTIN and Katsina University) to train over 500 people on SPVI and SPVIS. Those trained will form a pool of qualified personnel for the IFC to use for their upcoming solar project activities. Due to the reputation of the IFC, this is an important first step to ensure the market begins utilizing the certification system.

Furthermore, REEEP has been in discussions with the ECOWAS Center for Renewable Energy and Energy Efficiency (ECREE) to promote the certification system throughout the ECOWAS region. As ECREEE begins to promote the idea of certification standards in the RE/EE sector, interested ECOWAS countries can work with ECREE and utilize the curricula developed by REEEP and NESP. In addition, and perhaps more importantly, ECREE will ensure that rather than certifying individual training institutes, they will certify the body conducting the examinations. This is more cost-effective and will ensure impartiality. The end goal will be that a company's technicians certified under one country can then practice in all ECOWAS countries. This will fuel the growth of the sector throughout all of West Africa. Although the end result may be a long way off, it is a major achievement of REEEP if the certification system is promoted and utilized by a regional body like ECOWAS.

2.3 IMPLEMENTATION CHALLENGES AND LESSONS LEARNED

Over the course of the four-year program, REEEP has faced a variety of challenges, some of which were resolved through problem solving and the refocusing of activities. However, the lending environment in Nigeria remains difficult, particularly for RE/EE companies, and not all barriers could be overcome. This section presents the main challenges the program faced, the solutions REEEP pursued, and recommendations for future programming in the energy sector of Nigeria.

REEEP categorizes the challenges into four broad categories: a) access to markets b) access to finance c) government policy and regulations and d) technical capacity.

Access to Markets

Given how few people in Nigeria have access to reliable energy, demand for RE/EE energy solutions in Nigeria should be high. However, in reality demand is low. This is driven by consumers' lack of awareness of RE solutions and a distorted perception of poor functionality and quality by those who are familiar with such products.

REEEP conducted a survey in 2015 to better understand the opportunities and constraints to the RE sector in Nigeria (see Annex 5). The survey showed that 85% of households and 61% of small and medium enterprises (SMEs) in Nigeria had never seen an advertisement for RE products or services[1]. Due to the high upfront costs of RE installation, 70% of households and 91% of SMEs do not think future savings are enough of an incentive to adopt the technology. REEEP has heard similar assertions from RE businesses that say many consumers are not even aware that RE solutions exist.

In addition, Nigerians perceive renewable energy projects as unreliable and dysfunctional due to a number of high profile projects that have failed throughout Nigeria and across Africa. Only 5% of households and 20% of SMEs trust the quality of renewable energy products in Nigeria[2]. Solar projects fail for a variety of reasons, including corruption in the procurement process, lack of service and maintenance, the drive to cut costs by employing cheap equipment, and finally the lack of capacity and technical knowledge by those installing the systems.

To address the issues of lack of awareness and poor perception, REEEP's training and certification component trains developers on quality installations and maintenance, as well as promoting certification standards in the market. This will lead to better quality systems, improving the perception of solar projects in Nigeria. This component is discussed further in the Technical Capacity section below.

Although REEEP's activities did raise awareness among consumers of the availability of quality renewable energy products, the demand remains low. REEEP recommends the Nigerian government create an awareness campaign that promotes RE solutions as reliable and cost effective. REAN, which is made up of RE developers, is also well placed to conduct this type of campaign since they would benefit directly from increased demand. RE businesses also have a responsibility to engage in product marketing, beyond simple sales, and address the lack of incentives for customers to adopt RE systems by offering competitive pricing and providing functional products and quality services. Donor institutions can support RE businesses to do this through further programmatic activities.

Another way that USAID and other donors can address the perception problem is to ensure that any tenders for RE/EE projects they support do not encourage bid competition solely on the basis of price. When developers are forced to compete on price alone, they cut costs, leading to a race to the bottom in terms of low quality products, shoddy installation, and removal of maintenance costs, which are essential to the functioning of renewable energy systems. These projects become a liability to the entire RE market in Nigeria

Access to Finance

Across the entire financial system in Nigeria (not only the RE sector), local banks are lending at unfavorable rates, due to high country risk, a foreign exchange crisis that began in 2015, and a lack of long-term funding. Banks offer short tenures, typically no more than 1.5 years, high interest rates of about 28%,

[1] Renewable Energy Market Opportunities Assessment in Nigeria, Chimaobi James Agwu, USAID REEEP, 2015

[2] ibid

and high collateral requirements of over 100%. Due to the high upfront costs, long payback period, and infrastructure nature of RE projects, these are impossible terms for RE companies. Although international finance is an option for some companies, this increases a company's FX exposure and is not a long-term solution to the root of the problem. Furthermore, REEEP overestimated the likelihood that banks would be willing to lend to SMEs. Domestic financiers are reluctant to lend to SMEs unless they have a contract with a large, credit-worthy entity. Overall, there is a lack of available financing in Nigeria.

Because these are system-wide problems, donors and other stakeholders in the RE sector, including REEEP, have little ability to affect systematic change here. However, through its work unlocking finance for RE companies, REEEP has identified a few ways to solve certain characteristics of the access to finance quandary.

Addressing the FX Exchange Crisis

Scarcity of foreign exchange forced banks to suspend their lending to import-reliant sectors, including renewable energy. In response, most RE project developers put their ongoing projects on hold until a source of dollars became available. The negative impact the FX crisis had on REEEP's capacity to facilitate loans to the RE sector cannot be overstated. However, the situation improved slightly when the CBN injected more foreign exchange into the market, thereby reassuring all foreign exchange users of the government's determination to continue to meet all legitimate FX demand. This, along with other market interventions, has resulted in the appreciation of the naira in the parallel market.

Overall, conditions in Nigeria have improved further over the past months and managers are expressing renewed optimism that the economy will continue to grow and regain strength. According to financial experts, the gains made by the local currency, the corresponding drop in inflation and a 0.5% GDP growth for the second quarter of 2017 indicated that the country was pulling out of the recession. Although there is reason to be optimistic about financing and liquidity returning to the RE sector, challenges remain.

To address this FX liquidity challenge, REEEP worked with stakeholders to structure transactions in ways that mitigate the FX risks. With liquidity returning to the market, loans can be made in Naira and then converted to USD to purchase equipment, leaving no future FX exposure. Of course, Naira denominated loans are still difficult to obtain given the economic circumstances, but throughout the project REEEP continued to work with the CBN and other banks to try and direct funding towards the sector. In addition, REEEP developed a guideline of frequently asked questions about the FX market in Nigeria and has been in contact with MFX Strategies, an international derivatives trader, to make available a currency hedging instrument that could help overcome some of the barriers to credit. If a hedging instrument could be found, obtaining loans from foreign investors becomes far easier as the possibility of default due to FX exposure is eliminated. Once FX risk can be eliminated, REEEP believes that funding for the sector will begin flowing and the biggest barrier for RE/EE technology will be substantially reduced.

Lenders unfamiliarity with RE/EE sector

Part of the reason why banks offer such unfriendly terms to RE/EE developers is because they do not understand the sector. Given how nascent the industry is and the poor quality of some systems, this is not difficult to understand. Banks simply do not know how to evaluate risk in the renewable energy sector. By working directly with local lending institutions, REEEP provided technical assistance and group training sessions, depending on the needs of each lending institution. These services provided the knowledge needed for banks to appropriately assess the credit risk of RE/EE firms and projects in Nigeria. In addition, REEEP's services convinced some microfinance institutions to offer consumer-financing products to customers to access RE products. On the other hand, REEEP provided advisory services to developers on how to access finance so that they better understand what banks are looking for in a lending partner.

These services have resulted in real progress since the start of the REEEP program four years ago. Banks are closer to lending than every before, and many developers have put the right structures in place to access that finance. Donors should continue this momentum by providing these services until a turning point in the sector has been reached. REEEP expects this to occur within the next few years.

Addressing Lack of Credit History Through a Credit Guarantee

Part of REEEP's mandate was to maintain a pipeline of bankable projects for USAID's Development Credit Authority (DCA) implemented by Ecobank. While a credit guarantee was useful to address the issue of high collateral requirements and lack of credit history of RE developers, it did not change the short tenures and high interest rates of domestic lending institutions.

REEEP proposes two guarantee structures that could work better in the future. Each structure would increase options and foster competition to finance RE projects.

- Basket approach: Setting up a portfolio with multiple banks that have access to the DCA could result in increased competition to make use of the DCA. Each bank would be given a minimum amount, and those institutions that use it would be able to access additional money. This would prevent USAID from betting on one single bank, which might not be interested or able to lend to the RE/EE sector.

- Portable guarantee: This structure would guarantee a project that can then be taken to any lending institution. However, this would require USAID to manage the financial due diligence, which might not be as desirable for USAID.

In the end, DCAs are useful only if domestic financiers are on the cusp of lending to renewables. The FX crisis and resulting economic downturn put a halt on lending for about two years, preventing the DCA from reaching its full potential. Since Winrock believes Nigeria will reach that turning point in the next few years, it is worthwhile creating a second DCA under one of the two structures proposed above. This would require an accurate market assessment of the lending climate in the country for renewable energy projects.

Lack of Consumer Financing Options for Commercial and Solar Home Systems

REEEP calculated the inflection point where the monthly payback for an RE/EE system that replaces a traditional generator is lower than the monthly cost of running that generator. This is achieved with consumer financing at 9% over five years. This is the tipping point (assuming 100% financing) where replacing a current diesel or petrol generator with an equivalent solar system results in immediate monthly savings of a customer's energy bill. Making available a consumer-financing product to achieve this would be a great catalyst for the sector, propelling uptake in the market. But in order to do this, small businesses that are providing low consumer finance need to receive similar term financing from financial institutions on the back end.

Leaseback and Pay-As-You-Go (PAYG) systems reduce entry barriers for consumers by allowing them to pay small, affordable increments for electricity as they need it, rather than demanding a high up-front cost for installation and service. While these options are important to push consumer uptake, they push the financial burden backwards along the value chain from the consumers to the SMEs. This problem is particularly exacerbated in the solar home systems (SHS) and commercial segment as pico solar products already have a financing window through microfinance institutions.

Similarly, there has been much talk about the lack of mobile money options in Nigeria. Again, while this would help cut costs for developers to access payments from consumers, mobile money is not the reason why developers cannot access the finance they need. A mobile money system in Nigeria would not solve the financing constraints in Nigeria.

Management buy-in required for Nigerian lending institutions

For a project like REEEP that is supporting developers to access finance, it is important to get buy-in from the right people within Nigerian lending institutions. Hierarchy is culturally important in Nigeria so it is imperative to understand who has the authority to make decisions regarding lending portfolios. If the wrong person is consulted first and the information is not passed through the right channels, nothing will change. Speaking with the right manager is key to obtaining decisions after just a couple of meetings. For transnational banks, decision makers might not be in country so it is even more important to meet with them in person so that the request is not lost or diluted.

Stigma to doing business in Nigeria

REEEP's experience working with international financiers has shown that there is a stigma attached to doing business in Nigeria. REEEP often acted as an intermediary between international investors and Nigerian businesses by helping investors navigate the Nigerian business environment. For example, REEEP and GIZ's NESP created Due Diligence Guidelines to assist international financiers to understand what types of documents a stable business in Nigeria should have. The market still requires the presence of such an intermediary. USAID can continue this programming activity until more large-scale RE projects become successful and this stigma is naturally reduced over the course of time.

Split-asset model could enable access to financing for mini grids

Off-grid mini grids require that developers pay for both the generation and the distribution costs, which results in a high financial burden. Due to the lack of access to finance, this hurdle is almost impossible to overcome. This is not typical; in most countries companies receive subsidies from the government or grants to finance the grid's distribution.

Instead of trying to convince banks and other financial institutions to invest in a mini grid project as a whole, REEEP promotes a "split-asset model," which separates the distribution and generation components. Distribution costs are then shopped around for grants, while developers approach banks for loans for the generation portion, easing the financial burden for developers and lowering risk for banks. This model seems to be a more realistic way of acquiring the right blend of financing for off-grid mini grids. The pilot mini grids developed in conjunction with GIZ NESP and launched during the last quarter were funded utilizing this method. Over time as these mini grids pay back their loans and investors make a return, they will also demonstrate the effectiveness of this method to financiers, fueling new investment.

Communities should not own the grid

Many international donors are restricted from providing grants to Nigerian developers for a variety of reasons. Due to this, there has been a movement to give ownership of grant-funded grids in mini grid projects to the community. However, REEEP does not recommend this practice because it is unclear who is responsible for regular service and maintenance. Due to the newness of this technology, local governments and communities are not familiar with best practices of the sector. Given the plethora of unqualified suppliers and low quality equipment in Nigeria, it is particularly easy for communities to end up with inadequate arrangements for long-term upkeep of the system. Additionally, community ownership runs the risk of bringing politics into system maintenance.

By giving the responsibility of maintenance and upkeep to quality companies whose services, equipment, and reputation are vetted, donors can better sustain benefits to the community. Additionally, building strong local suppliers in the sector will create jobs, enhance competitiveness of SMEs, and result in more off-grid mini grid systems established throughout the country as RE companies grow. Therefore, donors should proceed with caution when giving ownership to the communities and should prioritize working with vetted local suppliers to manage the systems.

Government Policies and Regulations

Overall, the renewable energy sector is characterized by a regulatory void and a lack of incentives for both consumers (private and commercial) and industry to enter into the marketplace. REEEP worked to address these issues through a refocusing of project priorities, coordination with partners, and government advisory services.

Regulatory Void

One low hanging fruit for the government is to improve the regulation to protect off-grid mini grid operators in the case of grid encroachment. Off-grid mini grids are the most effective option to power communities that are too rural to be connected on-grid in the short-term. However, when grid encroachment takes place, which occurs fairly regularly, distribution companies (DISCOS) are legally obligated to manage the distribution of on-grid power. Operators then have two options: they can either set up a Power Purchase Agreement (PPA) and sell the power to DISCOS or the DISCOS can buy the operator out. The rate at which DISCOS buy out the operator should be calculated through a rigorous process that takes into account a means to incentivize operators to develop off-grid projects, while also offering a fair price to DICSOs. Currently, mini grid regulations do have procedures for grid encroachment; however, the current calculation procedure does not provide adequate protection for mini grid operators.

A Note on A Product Registry

Developed nations regulate RE products and components that are imported into or are manufactured in the country. The Nigerian government does not currently have the capacity or resources to enact such a system. Therefore, the idea of formulating a product registry of acceptable products and components was proposed by stakeholders. REEEP participated in these discussions to help flesh out this idea in order to put it into practice. The concept behind the guideline was to create a list of acceptable products and components based on those that are listed by international standard organizations or use the World Bank Group's "Lighting Global Quality Standards" list. Initially, this was conceived as a set of requirements issued by the REAN and required by Nigerian banks or financiers, so that it could be implemented relatively quickly.

However, due to the high percentage of equipment tailor-made for specific developers, the challenge was that the end result would be a limitation on Nigerian companies' ability to be creative and flexible in meeting the needs of a given project. Therefore, REEEP worked with REAN to produce an Equipment and Design Standard Guidelines that would not be binding in any way. Financiers and companies could make their own decisions as to whether to utilize this list to ensure quality products.
Nonetheless, considering the large number of RE/EE project failures caused by poor equipment and the large perception problem this has caused for the sector, the industry would do well to self-regulate and impose strict equipment standards that are not voluntary. Although this may limit current business models and innovation, improving the reputation of technologies with consumers is of vital importance if the sector is to grow.

Lack of Incentives for Private & Commercial Consumers

As explained in the Access to Markets section, many consumers do not believe there are enough incentives to switch to renewable energy systems. The Nigerian government can employ a variety of strategies to incentivize consumers to take up solar energy and create much-needed demand in the country.

- Reduce property tax for households or commercial entities that utilize solar
- Remove VAT from solar and renewable energy products
- Provide interest rate rebates for RE loans

- Provide corporate tax breaks for corporations that invest in green energies, such as telecoms or banks
- Net Metering: Enable consumers to sell energy back to the grid. Most renewable energy systems are designed to handle the peak hours of power usage. Therefore, during off-peak hours there is electricity that could be sold back onto the grid. By enabling consumers to either profit or reduce their own electricity costs, the government can increase the uptake by consumers of renewable energies. Additionally, this type of model would lead to more effective and efficient systems that spread the energy to those who are using it, further reducing greenhouse gas emissions.

Lack of Incentives for Industry

Although the government does not charge import duties on renewable energy components, there is room for improvement in the government's ability to enforce this policy equally for all types of RE equipment. Additionally, batteries for solar components are not included in the duty free list. Since batteries are essential to the performance and utility of solar systems, as well as one of the main cost drivers, these taxes should be eliminated. By doing this, the government can significantly decrease the basic costs of doing business for solar companies and ensure their competitiveness with traditional forms of energy.

Technical Capacity

A small number of good quality suppliers in Nigeria do exist. REEEP cannot emphasize this point enough. Not only do quality suppliers exist in Nigeria, these same highly qualified developers are not operating at their full capacity. In other words, supply is not the issue preventing the sector from growing; rather, demand for RE/EE products is. Therefore, while technical capacity can certainly be strengthened for a wider pool of suppliers, REEEP believes that the more pressing constraints for the industry are those related to access to markets, access to finance, and lack of regulations and incentives.
That being said, as new players enter the market, building up their technical capacity to provide quality products and services will be vital to addressing the poor perception of the solar industry and increasing competition for a healthier sector.

Underperforming Technical Staff

Until recently, Nigeria did not have the training and capacity building infrastructure needed to grow the sector and ensure qualified RE/EE firms. To resolve this, REEEP, in close partnership with NESP, developed a set of technical training curriculum that provides the foundation for a practitioner certification system using an independent third party certification body. World-class international renewable energy specialists produced material for seven courses. The curriculum provides over 800-pages of detailed content, which is up to international best practices and tailored to fit the unique needs of Nigeria. REEEP and NESP also built the capacity of 12 training centers across the country to conduct the training on a commercially sustainable basis.

Developing the curriculum, supporting training centers, and training 79 developers was a major achievement for USAID REEEP; however, further support is needed. The 12 training centers are at varying degrees of capability, in terms of conducting the training and marketing to students. While GIZ's NESP II will manage this activity going forward, other stakeholders can play a supporting effort to ensure developers continue to participate and training centers maintain high quality training services.

Promoting Industry-wide Certification

Furthermore, the industry as a whole should demand that all participants in the sector are certified under this system and adhere to a set of required qualifications. The result would ensure quality installations and have a positive effect on reducing the perception problem. REEEP and NESP have developed a simple, low cost national certification system for renewable energy and energy efficiency practitioners that can be

easily replicated in other ECOWAS countries. Rather than accrediting individual training centers to ensure quality, the REEEP and NESP system uses a third party independent certification body. This strategy will require far less resources and less politics to enforce.

In order to cut down on any conflict of interest, it is particularly important that the certifying body is independent from the training centers and is continuously committed to updating its standards to best practices and country needs. REEEP and NESP have conducted an analysis of groups with the potential to take over this service and narrowed it down to two agencies (see Annex 6 for the analysis). GIZ's NESP II will make the final decision and work with that organization to successfully implement the certifications. Other industry stakeholders can support this work by promoting, accepting and adopting this certification system. For example, government, donors, investors, and lending institutions can require the certifications on their tenders. As more established institutions accept and require these standards, the certifications will obtain industry acceptance, suppliers will respond by becoming certified, and more RE projects will be of higher quality.

The Future of RE/EE in Nigeria

Overall, access to finance remains a major obstacle, especially due to the FX crisis and economic downturn, which essentially put a halt to all financing activity in the sector. Despite this, REEEP, in partnership with other stakeholders, has had successes in assisting RE/EE developers to access finance and to improve their knowledge base. REEEP has supported domestic lending institutions to better understand the risks associated with the sector and the needs and requirements of its stakeholders. The curriculum developed by REEEP and NESP provides the only qualifying standards in the country and will continue to secure further benefits as the industry accepts them. While the sector still requires assistance from donors, REEEP believes the domestic banking industry is on the cusp of exploiting the opportunities in the RE/EE sector. Therefore, it is crucial that all stakeholders, with USAID's integral support, continue to provide support and help maintain the momentum that REEEP and others have built. Despite the many challenges to the sector, REEEP believes the future of RE/EE in Nigeria is bright.

2.4 MONITORING & EVALUATION PLAN UPDATE

All the achievements highlighted in this report were made possible through constant monitoring and an up-to-date appraisal mechanism using the revised Monitoring and Evaluation plan put in place by Winrock with approval by USAID within the second and third quarters of FY 2016**.**

During FY 2017 quarter four, a DQA was carried out on three of REEEP's indicators. Results were officially presented during the last quarter of the project. The three indicators assessed included:

- G.3: Greenhouse gas (GHG) emissions, estimated in metric tons CO2e, reduced, sequestered, and/or avoided as a result of USG assistance
- 2.1: Amount of investments mobilized (in USD) for clean energy as supported by USG assistance
- 1.2: Number of beneficiaries with improved energy services including bio-gel fuel

For each of the three indicators, five data quality standards are applied (validity, reliability, precision, integrity and timeliness), and the extent to which the data integrity can be trusted to influence management decisions is assessed. In the case of REEEP's three indicators, all three passed the five data quality standards and the data quality of all three could be trusted to influence management decisions. See Annex 7 for the full report.

3. INTEGRATION OF CROSSCUTTING ISSUES AND USAID FORWARD PRIORITIES

3.1 GENDER EQUALITY AND FEMALE EMPOWERMENT

REEEP has sought to mainstream gender issues in the RE/EE sector throughout the length of the project by undertaking activities promoting female participation in the sector. In particular, REEEP promoted training services to women and worked directly with relevant female assocations, such as the Female Architects of Nigeria Association (FAN) to provide training directly to their members (see Annex 8 for the training report). Furthermore, REEEP worked directly with the 12 training institutions on ways to market their training services specifically to women.

3.2 SUSTAINABILITY MECHANISMS

To ensure sustainability of REEEP's activities and goals, Winrock is working with several stakeholders to build up their capacity to better serve the RE/EE sector and take on the technical quality gaps that REEEP is currently filling. As part of the project's completion, Winrock prioritized conducting a smooth transition of knowledge and services to interested and capable partners. This required meetings, calls, and the provision of relevant documentation. For those partners with different mandates or those facing constraints that did not allow for the direct takeover of REEEP activities, Winrock shared and discussed the knowledge gained through REEEP's activities to ensure the entire sector could benefit from REEEP's work.

The following list presents the key partners who will continue REEEP's work after close:

- **GIZ NESP II**: Due to the close partnership between Winrock and GIZ, NESP is particularly well positioned to continue much of the work that was initially done in collaboration. Mostly, NESP will be responsible for the certification system. NESP will continue to support the 12 training centers by providing coaching and technical assistance as needed to ensure high quality services. Additionally, NESP will be instrumental in continuing to promote certification throughout the market in order to facilitate its uptake by all market actors. Finally, one of NESP II's main activities will be the establishment of at least 20 additional off-grid mini grids throughout Nigeria, capitalizing on the gains made by the first five pilots. All of these activities will ensure REEEP's work on standardizing the sector and accessing finance for mini grid projects will continue. Furthermore, both projects were able to achieve their objectives only through this close collaboration, demonstrating the importance of partnerships, especially given REEEP's small size.

- **12 Training Partners on Clean Energy Certification**: Although they will continue to require support from NESP II, these institutions are now responsible for developing qualified technicians certified to serve the RE/EE sector. Due to their expertise as training institutions, they have the resources and skills to carry this activity on sustainably.

- **USAID CEADIR:** The USAID Climate Economic Analysis for Development, Investment and Resilience (CEADIR) project will support the training and capacity building work that REEEP conducted with domestic lending institutions. Since this is in their wheelhouse, they are well-placed to continue these activities for the betterment of the sector.

- **Renewable Energy Association of Nigeria (REAN):** REEEP worked with REAN to build its capacity to promote and require certification among its members, who are RE/EE companies. REAN has taken over the technical assessments and quality standard interventions that REEEP performs, which can be given to financial institutions to access finance.

- **IFC:** In anticipation of upcoming solar projects in Nigeria funded by the IFC, the organization will recognize the certification system and possibly require it for all of its RE/EE projects. In addition, the IFC is signing a partnership with two of the training partners (NAPTIN and Katsina University) to train over 500 people on SPVI and SPVIS in order to have a pool of qualified personnel for their upcoming activities. Due to the reputation of the IFC, this is an important first step to ensure the market begins utilizing the certification system.

- **Domestic Financial Institutions:** Due to REEEP's services, these institutions have improved their understanding of the RE/EE sectors, their capacity to evaluate its risks, and can, therefore, serve the sector better in the future.

3.3 YOUTH DEVELOPMENT

Most of the training supported by REEEP during the project was imparted to young, recently graduated Nigerians, making it a de facto youth initiative even if it is not exclusive to youths. For example, the CEO of Nayo Tropical Tech, one company supported by REEEP's training and access to finance components, stated that the staff members who benefited from REEEP's training courses were recent graduates who understood the theory but learned how to put it into practice through the REEEP Solar PV Installer course.

3.4 POLICY AND GOVERNANCE SUPPORT

As the REEEP activity does not have an official Policy and Governance component, it does not dedicate much time to regulatory issues that are outside its mandate. However, in its work to support access to finance for the RE/EE sector, REEEP does try to affect structural changes within its government partners that will help advance its financing goals. An example of this would be its work with the CBN to support a change in its internal policies regarding funding for RE/EE sector.

The final goal is to provide a concessionary source of funds for the RE/EE sector that will waive the restrictions on importation, increase the borrowing limit under the MSMEDF and allow for some flexibility on the loan tenure, thus providing an opportunity for this sector to receive much needed credit. Winrock worked with Maristem Securities, Inc. to operationalize directed lending and bring a proposal to the CBN.

3.5 LOCAL CAPACITY DEVELOPMENT

PLEASE SEE Component 3, Trainings and standard promotion above.

4. STAKEHOLDER PARTICIPATION AND INVOLVEMENT

Maintaining coordination between key stakeholders in the industry has been one of REEEP's priorities in order to create synergies and achieve greater impact. As a member of USAID's Energy IP group, REEEP participates in coordination meetings aimed at keeping all stakeholders abreast of each other's activities. In addition the REEEP project prioritized the development of relationships with key partners in order to achieve its goals and ensure the gains made in the RE/EE sector would not be lost once the project ended. Key partners include those listed below. During the final quarter of the project, Winrock prioritized conducting a smooth transition of knowledge and services to interested and capable partners as detailed in the Sustainability Mechanism section above.

- **GIZ NESP**: Toward the beginning of the REEEP project, NESP was identified as having similar goals, yet no access to finance component. The two projects worked together to ensure complementarity of programming. Both projects collaborated on the development of the technical training, supporting 12 local training institutions to conduct the modules, and promoting a certification system to standardize training in Nigeria. REEEP tackled the issues around building access to finance for RE/EE projects, GIZ provided technical assistance to mini grid developers. Without this partnership, none of the 5 mini grids would have gotten off the ground, demonstrating how much more effective projects can be when they work closely together and build on each other's strengths.

- **Bettervest**: REEEP worked closely with Bettervest to fill the gap in financing for RE projects left by the FX crisis in Nigeria. Not only did the partnership make crowdfunding a reality, but also led to the landmark achievement of financial closure for five RE/EE projects. Nigeria finally has a functional and viable source of funding for projects in the USD $100K - $500k range. This is a major achievement for a sector that has not been able to access any loans in the last two years. See Annex 10 for more details on the REEEP-Bettervest partnership.

- **Local Training Partners**: Along with GIZ NESP, REEEP worked closely with 12 local training institutions to develop, conduct, and promote the RE/EE training modules designed to address the persistence of low quality RE projects. As these institutions will carry on the trainings after REEEP finishes, they are integral to the continued growth of the renewable energy sector in Nigeria. To see a list of training partners, see REEEP's Resource Book in Annex 1.

- **Domestic Financial Institutions:** REEEP partnered with a variety of local banking institions to offer training, technical assistance and bespoke capacity building sessions on the RE/EE sector, depending on the needs of the institution. Due to REEEP's services, these institutions have improved their understanding of the RE/EE sectors, their capacity to evaluate its risks, and can, therefore, serve the sector better in the future. Additionally, REEEP offered other services to banks per request, such as working with microfinance institutions to develop financing products for consumers to access RE products and conducting energy audits for bank retail locations.

- **USAID CEADIR:** Throughout the project, REEEP partnered with the USAID Climate Economic Analysis for Development, Investment and Resilience (CEADIR) project on hosting several networking events that brought together renewable energy developers and interested lending institutions and financiers. CEADIR's strong relationships with regional institutions across West Africa was an additional benefit to the investors REEEP could bring to the table.

- **Renewable Energy Association of Nigeria (REAN):** REEEP worked with REAN to build its capacity to promote and require certification among its members, who are RE/EE companies. REEEP also helped REAN organize themselves into an association by co-developing formal bi-laws and other governance structures.

- **NEMSA:** The Nigerian Electricity Management Service Agency is the regulator of all electrical connections in Nigeria, including solar. Throughout the duration of REEEP, Winrock helped build the capacity of the organization to perform its obligations of verifying and inspecting all electrical solar installations. REEEP provided equipment in order to carry out the inspections and provided specialized training for its inspectors on solar PV installations. Furthermore, NEMSA inspectors attended REEEP's standard solar PV installation (SPVI), solar PV installation supervisor (SPVIS), and mini grid design (MGD) training courses.

In addition, REEEP held and attended the following forums in the last quarter of the project (and first quarter of 2018):

- **WAPIC Conference and USAID Energy IP Group Meeting**: REEEP had a booth at the West African Power Industry Conference on November 8th, where they promoted the certification systems, 12 training institutions, and the mini grid due diligence guidelines. In addition, Chief of Party Javier Betancourt presented the due diligence guidelines with Luis-Carlos Miro Baz, an advisor from GIZ. The following day the USAID Energy IP group meeting was held to capitalize on the event's attendance. REEEP and GIZ again presented the mini grid due diligence guidelines and gave copies to all the partners.

- **World Bank ESMAP and REA Workshop:** REEEP attended a workshop on December 6th hosted by the World Bank and REA to promote their upcoming ESMAP project. REEEP participated in two panel discussions during the event. Chief of Party Javier Betancourt led a panel discussion on access to finance in the RE/EE sector, and Senior Advisor TVET Felix Nitz participated on a panel about training, which also included two of the training institutes that offer the curricula developed by REEEP and NESP. In addition, the event provided an opportunity for REEEP to publicize all of the 12 training institutions and their offerings.

- **Heinrich Boll EPRG Power Lab Preparatory Meeting:** On January 19, the Heinrich Boll Foundation convened a preparatory meeting with a variety of stakeholders in the energy sector to provide an action plan for the Economic Recovery and Growth Plan (ERPG) Team in the sector of power. The ERPG planned to convene a "Power Lab" in February or March to identify tangible projects that increase access to electricity that Nigeria could support. REEEP's Chief of Party, Javier Betancourt, attended and was instrumental in providing a clear and comprehensive picture of the challenges lending institutions and developers face in the provision of access to finance in the energy sector for SMEs and medium-sized projects.

- **REEEP-CEADIR Financing Opportunities Seminar:** In partnership with USAID CEADIR, REEEP hosted an event in Lagos (January 23) and an event in Abuja (January 25) exploring RE/EE financing opportunities in the real estate, commercial, and industrial sectors. The goal was to bring international and domestic financiers together with project developers to showcase the existing potential in the RE/EE sector, share lessons learned regarding access to finance, and provide an opportunity for both groups to network with each other. A printed deal book was given to all participants that provided a pipeline of projects seeking finance for upcoming projects. This was also a particularly good opportunity for REEEP to make known to financial institutions that

CEADIR would be taking over REEEP's training and capacity building initiatives and to ensure CEADIR had all the resources REEEP could provide in order to do so.

- **Gbamu Gbamu Mini Grid Commissioning in partnership with GIZ:** On February 9th, GIZ held a commissioning ceremony for Rubitec Solar's mini grid in Gbamu Gbamu. The presence of the US and German Counselor Generals demonstrated the importance of this mini grid, which is expected to showcase the bankability of solar mini grid projects in Nigeria. The project was funded jointly by GIZ, the European Union, the Nigerian government, and Bettervest, a German social investment platform. REEEP provided technical assistance and training on mini grid design/installation and financial advisory services to Rubitec and helped facilitate debt finance. The mini grid in Gbamu-Gbamu will provide electricity on a pay-as-you-go basis to over 2,500 residents for roughly $0.50 per kilowatt/hour, with Rubitec managing operations, maintenance, and fee collection.

- **REEEP Close Out Event:** On 26 February 2018, Winrock hosted a final event in Lagos at the GQ Venue with about 75 people from USAID, government, banking institutions, and developers. This event occurred after the quarterly Energy Access Group meeting, which aims to coordinate the work of all international bi-lateral donors and nongovernmental organizations. REEEP's close out event promoted REEEP's achievements, shared its lessons learned, thanked its partners, and provided information on additional resources for all stakeholders. REEEP also provided a Resources Book to all attendees (and sent via soft and hard copy to other partners who were not in attendance) that provided REEEP's investment pipeline, recommended vendors, and additional details on lessons learned that could be useful to other partners in the RE/EE sector.

5. MANAGEMENT AND ADMINISTRATIVE ISSUES

Activity Staffing: Winrock/REEEP management team is fully staffed with a Chief of Party (COP), a Renewables Transaction Advisor and Component managers, which include; the Renewable Energy Technical Specialist and the Monitoring and Evaluation Specialist. Others include the activity administrative assistant and the driver. The activity engaged a number of local and international consultants. They are brought in for specific support for our financial/technical training in Renewable Energy and Energy Efficiency technologies, and to support businesses and SMEs.

6. PLANNED INTERVENTIONS FOR NEXT QUARTER INCLUDING UPCOMING EVENTS

No further activities to be completed.

7. HOW IMPLEMENTING PARTNER ADRESSED AOR COMMENTS FROM THE LAST QUARTERLY OR SEMI-ANNUAL REPORT

During the previous quarter, REEEP addressed some relatively small comments on the report it submitted. REEEP received comments from USAID that required corrections; mostly these changes were on the writing style and other grammatical mistakes, rather than on content of the report. REEEP quickly addressed the comments, made the corrections, and re-submitted the report, which was subsequently approved by REEEP's AOR, Mr. James Lykos.

ANNEXES LIST

Annex 1: Resources Book with lessons learned, project pipeline, and vendor list
Annex 2: Green Tech Magazine Story About Gbamu Gbamu Mini Grid
Annex 3: Due Diligence Guidelines for Mini Grids
Annex 4: Names of developers trained
Annex 5: List of Result Breakdown per Developer
Annex 6: Renewable Energy Market Opportunities Assessment in Nigeria
Annex 7: Assessment of Potential Hosts for an Independent 3rd Party Certifications
Annex 8: DQA
Annex 9: Female Architect Training Report
Annex 10: Success Story: REEEP Finds Workable Funds in Tough Financial Landscape
Annex 11: Success Story: Bettervest Crowdfunding
Annex 12: Success Story: Training
Annex 13: Final Audit Report for CUSO International

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